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ABSTRACT

This document summarizes the findings of a year-long study that used case studies of specific schools in Japan to collect qualitative data on the Japanese educational experience. From 1994-95 the Case Study Project (a component of the Third International Mathematics and Science Study) collected information from interviews with students, parents, teachers, school administrators, and education officials, as well as through classroom observation. Topics investigated in the Case Study Project were education standards, dealing with differences in ability, the place of school in adolescents' lives, and the training and working conditions of teachers. The project examined elementary, middle, and high schools in the northern, middle, and southern parts of Japan. Specifically, the study sections are: (1) "Introduction" (Gerald LeTendre); (2) "Development and implementation of education standards in Japan" (Douglas Trelfa); (3) "Individual differences and the Japanese education system" (Hidetada Shimizu); (4) "The role of school in Japanese adolescents' lives" (Gerald LeTendre); (5) "Teachers and the teaching profession in Japan" (Carol Kinney). Within that broad framework some issues that were addressed include the effects of a unified curriculum, teacher work patterns, the role of schooling in social stratification, individual differences and concepts of ability, the role of the family, and foundations in preschool and elementary education. Statistical tables include information on general school enrollment trends (1996), standard number of school hours in Japanese schools, and subjects required of Japanese students. Includes an example floor plan of a Japanese high school, daily schedules for various high school students, and a weekly schedule for an elementary school. (MJP)

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The Educational System in Japan: Case Study Findings

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Executive Summary

The Case Study Project is a component of the Third International Mathematics and Science Study. The Project was designed to provide in-depth information on education in three nations: Germany, Japan, and the United States. The four research topics which were the focus of the case studies in each of these countries were selected by the U.S. Department of Education in an effort to collect qualitative data which would complement and amplify the quantitative information obtained through the main Third International Mathematics and Science Study. The topics investigated in the Case Study Project were: education standards, dealing with differences in ability, the place of school in adolescents' lives, and the training and working conditions of teachers.

During 1994-95, the study collected information from interviews with students, parents, teachers, school administrators, and education officials, as well as through classroom observations. This report presents findings from the fieldwork completed in Japan. Additional reports present findings from fieldwork in Germany and the United States.

Three cities in geographically different areas of Japan were chosen for study. In all three of the research sites we found similar patterns of instruction, curriculum implementation, parental support of learning, and adolescent engagement in school. Teachers in Kita, Naka, and Minami expressed similar beliefs about the role of effort in academic progress. In the early grades, the instruction can be best described as "whole person" education in which individual learning styles are emphasized. This atmosphere changes as students progress into junior high school and exam preparation begins to play a major role in schooling. In all three sites, adolescents appeared to experience similar school transitions, and the curriculum used at any given level—for example, first year students in junior high school—was also very similar across the three sites. In all three sites, adolescents and their parents expressed concerns over upcoming entrance exams and many students enrolled in *juku*.

The Effects of a Unified Curriculum

Monbusho, Japan's Ministry of Education, Science, and Culture, exerts a powerful influence over the entire nation's education system, producing national curriculum guidelines that serve as a national standard. Because of the clearly delineated national curriculum, students and teachers alike know which topics will be covered on national entrance exams and can determine which content questions are or are not

appropriate to their students. Elementary school students are not required to pass national or prefectural tests in order to move on to the next level of schooling. Rather, the competition, which is engendered by a strict system of entrance exams and the great need for academic credentials, appears to motivate students in junior and senior high school to perform at high levels. Parents and teachers tended to be critical of the pressures exerted by the entrance exams but were rarely critical of the overall Monbusho guidelines. Despite this emphasis on preparation for the entrance exams, Japanese teachers spent a great deal of time preparing material that was aimed at students who were of lower-than-average academic ability.

Japanese administrators and policy makers involve teachers in the curriculum revision process. Monbusho actively solicits the advice of teachers on its national panels and makes serious attempts to investigate how the curriculum is implemented in the classroom. The curriculum revision process is closely tied to what teachers experience in their classes, and teachers see themselves as curriculum researchers, a role they clearly accept.

Teachers spend a great deal of time researching *how* to teach. This commitment means that they devote a good deal of their planning time to the organization and sequencing of lessons. Teachers are not under pressure to provide extensive materials outside the curriculum or to create their own curriculum. Rather, they are expected to elaborate on the material provided in the textbooks.

Teachers are expected to adjust the lessons to the level of the class they are teaching and to demonstrate their techniques to other teachers. Moreover, teachers from around the nation appear to share ideas readily. As a result, teacher innovations in methods of teaching and content of courses are widely disseminated via local and regional meetings. Ideal lesson plans are widely circulated and new teachers have access to these plans. Efforts at the local and regional levels are coordinated by school boards and the Monbusho. This coordination is of benefit because:

- It greatly reduces the work that individual schools and districts must do in deciding what reforms to follow.
- Coordination means that what teachers do in the classroom is directly linked to curricular reform, although local schools and teachers have limits placed on their adaptation of materials.
- Ideas created at one district can be readily communicated and implemented in another district, because of the similarity of the curriculum and school organization.

Teacher Work Patterns

Teachers are generally required to be at school for at least 8 hours a day, and often spend extra hours in planning, meetings with other teachers, advising students, or socializing. The teachers reported that most of their work was done in school, a fact that they felt contributed to the general atmosphere of collegiality. The Japanese teachers and administrators we talked with described their workplaces as close-knit communities of educators who readily shared information and teaching experiences. This strong sense of community appears to affect how teachers view and deal with student disruptions. Teachers were the primary disciplinarians for their homeroom classes, but if the problems are serious, teachers can call on other teachers, the head grade-level teacher, or administrators for support. Few teachers reported feeling worried or apprehensive about student behavior.

At all levels, teachers reported that they saw the purpose of education as guiding students to become more fully developed human beings. Teachers organized and supervised student clubs and helped orchestrate schoolwide events. Particularly at the elementary level, teachers emphasized that their role was to improve the overall education of the child, not just give academic instruction.

Foundations in Pre-school and Elementary Education

Like previous researchers, we found that Japanese educators and parents place great emphasis on early foundations for learning. Elementary classrooms offer many surprising contrasts to later years of schooling. We visited schools that favored individual enrichment work through non-academic subjects as well as math and science lessons that emphasized thinking and discovery. Arts, music, and physical education play a large role in the general curriculum. Students spend a significant amount of time planning, preparing, and participating in yearly schoolwide events that have no direct bearing on academic achievement.

The word "studying" has a much broader set of meanings in the Japanese context than in the United States context. Studying, as one mother put it, is a life-long task: one studies how to be a wife, mother, a co-worker, and perhaps even a retiree. Creating a positive attitude toward study in the early years, adults reasoned, was crucial to further academic and social success. Teachers and parents linked many of Japan's major student problems, such as dislike of math and science, lack of creativity, school

refusal, and bullying, with early failures in the child's education. If children become excited in learning about their world, Japanese educators reason, they will continue to pursue their studies in later years. Students will then become motivated learners in a general sense.

From the earliest grades on, Japanese children are taught to work in small groups (*han*) as well as to participate as classmates, grade members, and members of the whole school. These multiple layers of group affiliations appear to create a strong sense of identification with the school. The individual student is recognized less for his or her personal accomplishments than for the contributions he or she makes to the group, class, grade, or school.

Japanese educators also focus on the interests of average and below-average children. Teachers place little emphasis on innate ability, and most elementary teachers go out of their way to de-emphasize ability in favor of interest and effort. The term "ability differences" (*noryokusa*) is generally avoided and "difference in mastery levels" (*shujukudo*) is preferred. This preference reflects the fact that Japanese adults are deeply uneasy about dividing children based on ability. One reason given by teachers for not using ability grouping was that it would hurt students emotionally to the extent that they would lose their motivation to study. Japanese teachers believe that a child's motivation is central to success and that all children are capable of mastering the curriculum with proper encouragement.

Individual Differences and Concepts of Ability

Japanese educators generally see ability differences arising as the result of differences in upbringing, in family background. Teachers do not consider that abilities are innate but rather acquired through individual effort. Except for students with clearly recognizable disabilities, teachers see all students as capable of succeeding in school. Individual effort was most often mentioned as the source of achievement and high ability.

Individuals who display a "strong mind" or who have strong motivation are considered to be the students who will excel in math, science, and a range of other areas. What most frequently differentiates these individuals from their peers is the kind of primary family relationships they have and the consequent effects these early relationships have as the child develops. Students who are not well socialized "run out

of oil" before other students do. As a result, they fall farther behind and become less engaged in school.

Motivation is viewed as a characteristic that teachers can actively cultivate by encouraging a child to study what he or she likes, thereby deepening the sense of excitement and mastery the child has. Once that attachment to school and classroom activities is made, the interest in learning or studying will be firmly rooted in the child's mind or psyche.

Special programs for the gifted or programs that allow individual children to develop at different rates are almost unknown in Japanese public elementary and junior high schools. *Juku*, however, provide similar opportunities outside of school. There is no grade retention and no skipping of grades. However, virtually all Japanese elementary and junior high schools have special classrooms, often given fetching names like "green mountain," where students with severe disabilities are taught separately from the rest of the school. The curriculum for these classes is less difficult than that taught in mainstream classes, and students rarely interact with their mainstream counterparts. While the basic Japanese ideal is for inclusion, there are clear limits to this inclusion. During the compulsory years of schooling, only students with severe disabilities are kept outside the mainstream. However, upon entrance to high school, all students are streamed into different high school courses based largely on entrance exam scores.

The Role of Schooling in Social Stratification

The competitive atmosphere around the high school entrance exams is linked to the fact that once students are tracked into a given high school, they will have great difficulty changing their general academic trajectory. As evidenced by the very different curriculum and attitudes of the students at Meiji and Naka Vocational, the outlines of students' future academic and economic prospects are largely pre-determined by the high school they enter.

In the high-ranking academic tracks, students follow a course of study and extra-curricular involvement that is very similar to the one they experienced in junior high school: They spend significant portions of their time outside of school preparing for classes, practicing in clubs, and attending *juku*. Students in the more highly ranked academic high schools noted that they engaged in competition with their classmates to see who can do best on the practice exams and other tests. In the low-ranked aca-

demic schools or in vocational schools like Naka Tech, students exhibit little interest in school work except when is it directly linked to immediate work goals. Students and teachers in these schools reported that students would study hard to prepare for a certification exam, but not for a test in math class. In these schools, student life is much more centered around work, and students often take part-time jobs outside of school.

Despite the hierarchical tracking that occurs at the high school level, we found little evidence of school resentment. Even the dropouts appear to be attracted to their old schools and behaved in ways directed toward gaining recognition from the school. A factor in making school meaningful to Japanese adolescents is that school is their major social arena. The school plays a significant and positive role in the peer culture of most Japanese adolescents. The students we interviewed rarely saw the school as imposing an onerous regime of study. Rather they pointed to the entrance exams as producing the pressure and stress they experienced. While several students did complain that school rules on dress and deportment were too strict, they rarely expressed resentment toward their teachers.

The respondents pointed out problems such as bullying, dropouts, and a general increase in the number of students who dislike math and science. However, neither students nor adults linked these problems to the teachers or the schools per se. They generally blamed these problems on the exam system, the competitive nature of society, and what they perceived to be the increase in divorce and disruption of family life. The vast majority of students spent more time at school in any given week than the teachers required. Rather than seeing school as an imposition, most students saw it as resource in their attempts to succeed in future academic competition and as a place to expand and deepen their social network.

Family

Parents also voiced similar respect for schools and teachers, but were critical of the exams and academic competition. Japanese parents give to their children a wide range of support when it comes to academic matters. Despite the narrow quarters that many Japanese families occupy, Japanese families generally provide a study desk for children from elementary school on. Most of the families in this study also provided a separate room once the child reached junior high school. Almost all of the families in the study were providing their children with some form of outside school support or were paying for them to enroll in special clubs or pursue their hobbies.

Japanese families also are willing to allow adolescents to study in lieu of doing house work or other household duties. Few adolescents had any specific chores around the house. Most students came home, ate dinner with one or both parents, and then studied or relaxed. Japanese parents (and grandparents) are willing to provide their children with money for clothes, compact discs, and video rentals. Many parents felt that studying must be balanced by adequate recreation. They were willing to give students money to buy these recreations, and they felt it was important to make sure that their children had a chance to relax while engaged in preparing for the entrance exams. However, unsupervised recreation time was limited for most adolescents. The major activities that students engaged in were shopping or going to movies. Many adolescents were content to simply spend time at home or at a friend's home, watching videos or listening to music.

One significant aspect of family-school relations is the declining involvement of parents as the child progresses through the education system noted by parents, teachers, and students alike. While most parents make great efforts to participate in elementary school events, participation at the junior high school and high school levels seems to wane. However, parents still appear ready to support their children through investment in extra-school activities, and many families spend great sums to enroll students in *juku*. It appears that as children pass into adolescence, parents expect the school to take more responsibility for organizing activities for students, and teachers to take an active role in guiding and advising.

Reform of the Education System

Our respondents (parents, teachers, students, and education officials) supported a uniform approach to providing a nurturing education at the elementary level, a more intensive academic and extra-curricular program in junior high, and a highly differentiated program at the high school level. In the early years of education, the curriculum is geared to the *average* student, and serious academic competition does not affect most students until the second or third year of junior high school. The major academic issues raised by teachers, parents, and students centered around the role that entrance exams play in Japanese schooling. Many of our respondents felt that this system has created too much pressure on students and teachers alike. Public schooling, some said, was becoming more about getting into a good college than about getting a good education.

Although the Monbusho has advocated more consideration of the individual in education and mandated a decrease in the number of days in the school week, the results up to now have only served to heighten the pressures that teachers and stu-

dents feel, not relieve them. Severe competition on the entrance exams for admission to elite schools continues to create *educational overheating*. The *juku* which play such a large role in the overall academic picture, are outside of the Monbusho's control. The *juku* at once support the schools yet were often cited by respondents as the *fuel* that causes educational overheating.

Chapter 1

Introduction

The American fascination with Japanese schools and students dates back over a century. During the late nineteenth and early twentieth centuries America was clearly regarded as a leader in education in Japan. American influence was evident in a wide range of schools as Japanese students came to study in the United States, and American teachers were brought to Japan in order to modernize Japanese education (Beauchamp, 1976; Roden, 1980). For a second time, in the late 1940s and early 1950s, after Japan's defeat in World War II and subsequent occupation by U.S. forces, Americans were called upon to help Japan rebuild its education system as part of the country's transformation into a democratic state (Tsuchimochi, 1993). In the postwar period, U.S. reformers emphasized education as the means of preparing the Japanese populace for the freedoms and responsibilities necessary to sustain a self-governing nation. In both the United States and Japan, U.S. reforms were seen as essential for Japan's economic recovery and its transformation from an aggressive, nationalistic society to a peaceful, democratic one. Although some of the reforms put forward by the Americans had been proposed earlier by Japanese reformers, and some of the United States-initiated reforms failed or were never implemented, the U.S. continued to be regarded as a model in the area of education (Armstrong, 1976; Wray, 1991; Tsuchimochi, 1993).

Since the late 1970s this relationship has been inverted. Americans are still fascinated with Japanese education, but the stream of articles and books that have been written since that time no longer portray America as a leader. Taken as a whole, these writings convey a mixture of admiration, envy, and uneasiness. Widely read books on Japanese schools, such as White's *The Japanese Educational Challenge* or Rohlen's *Japan's High Schools*, contain chapters entitled "Lessons for America." It appears that many writers and researchers now think that Americans have something to learn from the Japanese when it comes to schooling. Americans have become more self-conscious about how their schools compare with schools in other nations. The perceived loss of U.S. standing as an international leader in education has brought increased attention to Japanese schools in both scholarly journals and in the popular media. Unfortunately, the media's treatment of Japanese education has tended toward extremes, either excoriating or praising Japanese teachers and schools without carefully analyzing what actually goes on in the classroom.

Despite the great mass of data on Japanese schools that has been accumulated since the 1970s, our picture of Japanese education with regard to math and science still remains piecemeal. We lack systematic comparisons of math and science that contextualize how classroom activities relate to the overall structure of education, teacher training, individual differences, and the lives of students and their families.

Rationale of the Study

Our aim in this volume is to provide an in-depth look at several policy issues in the context of Japanese schooling as part of the work of the Third International Mathematics and Science Study (TIMSS). In the main TIMSS study, math and science achievement tests and surveys were administered in almost 50 nations around the world. The case studies were designed to provide in-depth research on how key policy issues facing U.S. educators are dealt with in Germany and Japan as well as to investigate the cultural and structural context of schooling in each nation.

In each of the three countries, the research goal was to conduct an in-depth study of four policy topics: (1) national standards in education, (2) teachers' lives and professional training, (3) adolescent lives, and (4) conceptions of individual differences. To understand the details of each country's school system, it was necessary to analyze the structure of the schools (including the place of individual schools in the wider system), describe classes within schools, and analyze how individuals functioned within classes and schools.

Methodology

In all three countries, an ethnographic case study method was used to investigate the four topics. An extensive review of the relevant literature served as background for the formulation of the research topics. Topics and questions were generated and refined by educators and social scientists from the University of Michigan, review panels affiliated with the Department of Education in Washington, D.C., education scholars in Japan, and the field researchers. This approach ensured that the questions selected were relevant to U.S. policy makers and appropriate to the cultural contexts of Japan.

Training Session

The researchers met for a week-long training session at the University of Michigan prior to the field visits. They received background information on the study, learned to use the qualitative data analysis software, and met in teams organized both by topic and country. The interview formats for each topic were outlined, and the researchers from each country responsible for the topics then met in smaller working groups to discuss how the basic questions would need to be contextualized in the given culture. In the case of Japan, significant differences in attitudes toward work or social norms meant that the questions had to be re-phrased or explained to make sense in the Japanese context. For example, Japanese teachers routinely handle all of the school's administrative tasks. Furthermore, individual ability differences among students are rarely discussed. Because the interview schedule was designed as an unstructured format, the training sessions helped to assure that the data would be collected in a consistent and thorough manner with a high degree of consistency across topic and nation.

Each field researcher was provided with the guidelines developed at the training session and was instructed to probe for additional explanations and elaboration of answers when the responses seemed unclear or incomplete. In addition to unstructured interviews, the researchers were expected to conduct observations in classrooms, teachers' meetings, extracurricular activities, and other events that would provide information relevant to the four topics. The researchers interviewed parents, teachers, and students at each level, traveling to the school to conduct the interviews. The interviews and observations were translated, transcribed, and entered into a computer file using HyperQual II, a program for the analysis of qualitative data (Padilla, 1992). After entering the data, each researcher coded his or her material based on schema first generated at a group meeting of the Case Study Team at the University of Michigan in 1994. We then began an analysis of the material, cross referencing quotations from observations of parents, teachers and students; identifying major themes; and comparing variation across levels of schooling.

During the fieldwork phase, members of the research team in each country were in contact with each other via electronic mail (e-mail). Each week, researchers in the field summarized and reported their major findings. Staff members at the University of Michigan were also in constant contact with the researchers through e-mail, and team discussions about research strategies and interpretations of findings greatly aided the research effort.

The directors of the Case Study Project, in consultation with the National Center for Education Statistics and Japanese colleagues, identified three sites for the case study research in Japan. The selection of these sites was not random; the schools were se-

lected in order to get a sampling of regional variation within each nation as well as to provide a sample of schools with high, middle, and low levels of academic achievement. In Japan, the primary research site was Naka City on the main island of Honshu, with secondary sites in the north (Kita City) and south (Minami City). To preserve anonymity of all sites and persons interviewed, pseudonyms are used throughout the volume. The only major geographic areas not surveyed were rural regions, although some schools in the secondary sites did border on rural areas. In the primary field site, three schools at each level (primary, middle, and secondary) were chosen and attention focused on the 4th, 8th, and 12th grades. In the secondary sites, only one school at each level was selected. In addition to these schools, researchers also visited *juku* (cram schools or other after-school courses), prefectural offices, and interviewed officials from the Monbusho (Ministry of Education, Science and Culture).

The total time that each researcher spent in a given school varied from 2 to nearly 10 days. At some schools, our interviews were scheduled one after the other; in other schools, we would come for an interview, observe a class, and then go home to transcribe the tapes we had recorded. The shortness of time in each school was balanced by the fact that researchers Kinney, LeTendre, Shimizu, and Trelfa all visited the same schools in Naka City from September 1994 to June 1995. In this way, we were able to gain a sense of the school's yearly cycle of events. In total, more than 250 interviews with parents, teachers, students, school administrators and regional or national-level administrators were conducted. A total of nearly 150 observations of classrooms, school events or meetings were also transcribed and entered into the database.

Gaining Entry

Entry into the schools was mediated by Shigefumi Nagano and Toshio Sawada of the Japanese National Institute of Educational Research, and three cities were chosen as field sites. Generally, hosts from a local university made the initial contact for us and set up a meeting with the principal and other senior teachers. In Kita City and Minami City, these arrangements were conducted by Nagano and Sawada themselves. All of our interview outlines were translated and approved by the local boards of education prior to the commencement of the research.

While the staff at some schools did try to arrange our schedules in detail, our observations indicated that the schools were not managing our visits solely for the purpose of putting on a good show. Such management was reflective of the degree to which all social interaction is explicitly coordinated in Japanese schools. From the start of the day, teachers in Japan have very few minutes that they can call their own. Especially for teachers of third-year junior high school and high school students, preparation for the high school entrance exam means that there is little lei-

way in adjusting the daily schedule. It is also important to note that while members of the school staff arranged interviews for us, they did not try to supervise our interviews with students, teachers, or parents. For the most part, we found teachers ready to talk about serious problems and to express both their satisfactions and dissatisfactions with the school.

Another point which helped us to gain a broader sense of the schooling climate in each site was the fact that Japanese teachers are routinely rotated to different schools at 5- to 7-year intervals. This meant that when we interviewed 20-year veterans, they brought with them extensive experience in a range of schools and often referred to the other schools in which they taught. Some interviewees had taught at more than one level or had been transferred from rural areas. The scope of the teachers' experiences, combined with the fact that several families had been transferred to the research site from other parts of Japan, allowed us to gain perspective on a wide range of academic situations.

An Overview of the Japanese System of Education

A general discussion of the Japanese system of education is necessary in order to place the schools in the wider social context. The Japanese public system is highly centralized and administered under the Monbusho. At the regional level, each prefecture or major urban district has its own board of education. In some areas, high schools are under the direct authority of these boards, while elementary and junior high schools are managed by local (municipal) boards of education. For example, in Kita City, high schools were directed by the prefectural board of education but elementary and junior high schools were directed by the municipal board. In Naka City, all levels of schools were under the authority of the Naka City board of education. In general, in more rural areas, high schools will be managed directly by the prefectural board and elementary and junior high schools by the municipal board whereas in large urban centers, all schools are under the authority of one board.

Teachers are hired by the local or regional boards and are rotated through the schools on a pre-determined schedule. Competition for new teaching positions is often intense and boards of education hold entrance exams and interviews for potential applicants. Once hired, new teachers are required to undergo various in-service training sessions during their first years in the school system. Salary is determined by the locality, type of school, seniority, and the position held in the school.

Principals and vice principals are recruited from the ranks of teachers and have generally taught in the classroom for 15 to 20 years.

In terms of staffing, Japanese schools are virtually teacher-run institutions. Administrative duties are dispersed among the senior teachers through a system of committees that oversee all school functions. Teachers are also organized by grade level, and these grade-level committees are responsible for planning and implementing the year's curriculum as well as organizing extracurricular events for the grade.

Today, 95 percent of Japanese students are enrolled in some type of pre-school program, either kindergarten or day-care (Peak, 1992; Tobin, Wu and Davidson, 1989). Students then spend 6 years in elementary school *(shō gakkō)*, 3 years in junior high school *(chū gakkō)*, and 3 years in high school *(kō tō gakkō)*.

Nearly 30 percent of students are enrolled in private schools at the high school level (Statistics Bureau, 1993). There are also special schools at all levels for students with severe disabilities as well as a small number of elite, nationally funded, 5-year high schools. However, enrollment in the special schools and the 5-year high schools constitutes a very small percentage of the overall enrollment. See Table 1 for general enrollment figures.

Table 1—General school enrollment trends, 1996

School level	National/Public	Private	Percent Male
Kindergartens	377,522	1,474,661	50.8
Elementary schools	8,515,262	67,609	51.2
Junior high schools	4,449,760	231,406	51.2
High schools	3,405,120	1,457,605	50.3
Special schools for handicapped students	86,334	885	62.3
Junior colleges	38,819	481,819	82.3
Universities	661,398	1,820,407	68.7

SOURCE: Statistics Bureau, 1996: 688.

Education is compulsory for students from the age of 6 to 15 (i.e., for those at the elementary and junior high school levels). It is also tuition-free, although parents must provide required materials such as uniforms, math kits, and calligraphy sets). Elementary schools are generally within walking distance of the child's home, and during the school year small groups of children (guided by older students, a parent or teacher) can be seen walking to school. At the end of 3 years of junior high school, students must choose a high school they would like to enter and most will take a

high school entrance exam. While nearly all Japanese children go on to high school, none are guaranteed admission.

Students have several choices of high school. First, there are public, private, and a few nationally funded high schools. Within the public and private sector, students can apply to academic high schools or to non-academic high schools. About 25 percent of students eventually enter the nonacademic track, though most originally hope to get into academic high schools (Monbusho, 1993). Those who fail to enter either a full-time public or private high school may attend night courses offered by some public schools. There are also correspondence courses and training schools open to students who fail to find a place elsewhere in the system.

Elementary School Education

The elementary school *(shō tō kyō iku)* curriculum is divided into three major categories: regular subjects, moral education, and special activities. The nine regular subjects are Japanese, social studies, arithmetic, science, life and environmental studies, music, arts and handicrafts, homemaking, and physical education. The curriculum in elementary school provides ample time for music, arts, and physical recreation. Special activities play a major role in the overall curriculum and consist of such activities as clubs, school wide festivals, or competitions, student associations, and other student-run activities. Teachers spend considerable amounts of time organizing and participating in such activities as class trips, yearly sports and cultural festivals, and entrance and graduation ceremonies (Lewis, 1995).

The official school year for elementary students lasts 35 weeks. Each class period is 45 minutes long with 10-minute breaks after most subjects. The number of classroom periods each year increases with each grade. For example, first through third grades are scheduled for 850, 910, and 980 periods, respectively, while for the upper three grades the schedule calls for 1,015. The typical school day starts at about 8:30 a.m. and classes end around 3:50 p.m. Homeroom meetings occur at the start and end of each day and over two hours each day are spent in recess, lunch and cleaning the classrooms and hallways. Traditionally, students have gone for a half-day (until 12:30) on Saturdays, but starting in the spring of 1995 Japanese children have no school the second and fourth Saturday of each month.

Junior High School Education

After 6 years of elementary school education, students make the transition to the *chū gakkō*. Student life in Japanese junior high schools (*chū tō kyō iku*) is more regimented than in elementary schools and classes are divided by subject. For most sub-

jects, students stay in their classrooms and teachers rotate from class to class. Teachers are organized according to grade (i.e., first year, second year, and third year), as well as by the various committees they serve on and by academic subject. The grade divisions are the most salient and give students and teachers a strong sense of belonging to their homeroom class and grade.

In 1995, about 94 percent of Japan's roughly 5,000,000 junior high school students attended public schools (*Monbusho*, 1996: 688). In 1994, over 96 percent of junior high school graduates continued on to high school in that year, with about 2 percent entering special schools and another 2 percent entering the work force (*Monbusho*, 1996: 706). As junior high school marks the end of compulsory education, the third year of junior high school sees students preparing for what Japanese media has labeled the "exam hell" *(shiken jigoku)*, during which time the students prepare to take the high school entrance exam.

Middle school periods are longer than in elementary school, 50 minutes, and the minimum school year is scheduled for 1,050 periods. Special activities (class periods officially dedicated to such activities as clubs or free periods) take up 35 to 70 hours in the first year of study with time decreasing as students approach the high school entrance exams. These numbers should be considered a minimum, however, because the vast majority of junior high schools hold extra classes, especially for third-year students, before and after school as well as over the holidays. These classes are held in order to provide students with extra preparation for the high school entrance exam.

High School Education

Public education at the high school *(kō to kyō iku)* level is neither compulsory nor free. However, each prefecture or municipal district maintains publicly funded high schools that offer relatively low-cost education. The vast majority of the Japanese public and private high schools are 3-year institutions. In addition, there are also "night schools," correspondence courses, and nationally funded 5-year high schools, but these constitute a relatively small percentage (less than 5 percent) of overall enrollment. In 1992 about 73 percent of students were enrolled in academic courses and 25 percent in vocational courses (*Monbusho*, 1993). Although there is no restriction on vocational school graduates applying to college, few make the attempt. Vocational courses do not offer the rigorous preparation necessary for the college entrance exam.

Virtually all high schools admit students using scores based upon the high school entrance examination scores. However, different prefectures may place different emphasis on test scores and on grades. Shimizu and Tokuda (1991) note that in Hyogo prefecture, student grades and character reports *(naishinsho)* account for 50 per-

cent of material weighted in the selection process. In the last few years, the use of "recommended admissions" *(suisen nyū gaku)* has also increased.

In 1992, there were over 5.2 million high school students in Japan and about 70 percent of them attended public high schools. In 1992, over 32 percent of high school graduates continued on to college or junior college, 30 percent went to one of the various specialty schools, about 32 percent found employment, and roughly 5 percent were unemployed or not in school (*Monbusho*, 1993). The percentage of students who drop out of high school is generally low (about 2 percent), but this figure varies considerably by type of school. Students in the night schools had a dropout rate of over 15 percent as compared with only about 1 percent for academic high schools (*Monbusho*, 1993).

High school periods, like those in junior high school, last 50 minutes and the school year is scheduled for 1,190 hours. As in junior high school, extra classes are commonly provided by academic high schools, but vocational schools rarely organize such classes. Clubs and other extracurricular activities also consume a good deal of the students' time. Students in vocational schools tend to take part-time jobs during the year, and most of these students enter the workplace upon graduation.

Shadow Education

Japan supports a wide range of academic institutions outside of the school system. This dense network consists of home tutors, correspondence courses, juku, and exam prep schools *(yobiko)* (Rohlen, 1980; Stevenson & Baker, 1992). These extra-school forms of education have been described as "shadow education" because their curriculum tends to shadow the curriculum offered in the public schools.

Most of these forms of education are collectively referred to as *juku* by Japanese parents and students. There are two major types of *juku*: individual enrichment courses *(narāigoto/okeigoto)*, and academic *juku (gakushū)*. The academic juku are further divided into review juku *(hoshū)*, which cater to students who need remedial assistance and advancement *juku (shingaku)*, which cater to students preparing for the entrance exams. Schools that specifically prepare students for the college entrance exams are called *yobiko*. Students who fail to get into the college of their choice may spend a year or two studying at these schools after graduating high school.

The individual enrichment courses are primarily nonacademic and some Japanese consider them to be distinct from the academic *juku*. These *juku* teach such activities as swimming, piano, or calligraphy and are most popular among elementary

school students. Review *juku* are popular with upper-elementary and junior high school students. Students in these *juku* get help in subjects that they find difficult. Many of these *juku* are run out of private homes by teachers who use the same texts used in the classroom. The advancement *juku* are the ones that most closely match western stereotypes. These schools are largely attended by junior high students and high school students who are seeking to prepare for the upcoming entrance examinations.

In a survey of over 60,000 students conducted by the Ministry of Education (*Monbusho*, 1996), the percentage of students attending *juku* is surprisingly high (see Table 2). Enrollment in individual enrichment courses tends to decrease over time while enrollment in advancement courses increases. Enrollment also varies markedly according to the size and location of cities.

Table 2—Percentages of students enrolled in *juku*, by grade level

Grade Level	Advancement *juku*		Enrichment *juku*	
	1985	1993	1985	1993
Elementary				
1	6.2%	12.1	60.1%	70.1
2	10.1	14.1	69.1	79.4
3	12.9	17.5	76.8	81.2
4	15.4	23.6	78.0	82.5
5	21.1	31.1	74.9	77.5
6	29.6	41.7	65.7	70.6
Junior High School				
1	41.8	52.5	35.7	36.7
2	44.5	59.1	26.4	29.3
3	47.3	67.1	19.6	18.8
High School				
1	17.3[a]	32.2[b]		
2	28.6[a]	43.3[b]		
3	42.4[a]	40.9[b]		

SOURCE: All figures from *Monbusho*, 1996, except (a) Kawai Juku, 1994 and (b) Tokai Ginko, 1995, p. 9.

Class, Ethnic, and Regional Differences

Compared to the rich social and cultural diversity found in many countries, Japan has a relatively homogeneous population. This is a fact that Japanese themselves are quick to point out, especially when asked about problems that arise from differences in class, ethnicity, or language. Our findings indicate that such differences are impor-

tant in understanding how the Japanese education system works. While ethnic and linguistic minorities do constitute a small percentage of the overall population, differences arising from socioeconomic background or region have a powerful impact on the nature of schooling.

Economic. The most striking effects we noted through our observations were differences in opportunity for education associated with income and wealth. Economic background appeared to influence parental participation in school activities, the rate of students holding part-time jobs as well as parents' and students' academic aspirations. For example, in one school we visited both parents in most families held full-time jobs, and teachers at this school noted that there were more student behavior problems at school and more problems within families than at other schools. In wealthier neighborhoods, families were able to afford *juku* and other extra-school academic opportunities for their children, and at more schools in affluent neighborhoods we met students who had spent a summer overseas.

Regional. While Japanese authorities strive to ensure that high quality public education is available to all students, certain regional differences in access to school also exist. Teachers in Kita City remarked on the harsh conditions in the elementary and junior high schools located deep in the mountains of the prefecture. Access to high schools was also a problem in Kita: there was no well-developed system of public transportation and children had long rides when commuting to school. Most significant, though, were differences in opportunity for extra-school forms of education. Kita teachers at all levels remarked on the lack of large *juku* in Kita City. This lack of *juku*, teachers noted, forced them to provide more extra classes and act as guidance counselors in helping students pick future schools.

Ethnic education. Japan is home to several ethnic minority groups including the Ainu, presently concentrated in northern Honshu and Hokkaido, as well as descendants of Chinese and Korean immigrants. With Japan's rise as an economic world power, people from many different nations have come to Japan as temporary residents who work and send money back home to their families.

The largest minority groups in Japan are children of Korean and burakumin descent. Over 600,000 people of Korean descent reside in Japan. Many of their parents or grandparents were forced to come to Japan during Japan's pre-war colonial occupation of Korea. There are currently 60 Korean schools in Japan with an enrollment of 30,000 to 40,000 students.

On the other hand, *burakumin* are ethnically and linguistically Japanese, but their ancestors were at one time relegated to out-caste status. Despite nationwide at-

tempts to reduce inequality, Japanese of *burakumin* ancestry have continued to experience problems in access to jobs, housing, and education.

Research on minority issues in Japan remains a volatile topic. Previous studies focusing on education have uncovered pervasive evidence of institutionalized discrimination faced by students of *burakumin* ancestry. Nabejima (1993) found systematically lower rates of high school completion for students of *burakumin* ancestry. For the nation as a whole, the overall high school graduation rate for non-burakumin students was 94.4 percent whereas as it was only 87.5 percent for *burakumin* students. Differences in college attendance were even more striking: overall 30 percent of non-*burakumin* students went to college in 1990 whereas less than 20 percent of *burakumin* students did so (Nabejima, 1993)

Burakumin students are obviously experiencing some barriers to academic success, but describing these barriers is difficult and can be offensive to many Japanese of burakumin ancestry. Many families of *burakumin* descent do not wish to be identified as *burakumin*. They prefer not to emphasize this ancestry, and one principal informed us that some children in his school did not know they were of *burakumin* descent. The schools we visited had a strict policy of maintaining anonymity with regard to these students. The majority of teachers we interviewed did not seem to know who in their class was from *burakumin* families. Given these factors, we decided to refer to previous studies rather than attempt to address this difficult and provocative issue in our fieldwork.

The Field Sites

The field sites for the case studies were selected in order to capture as wide a range as possible of the regional, class, and ethnic diversity of Japanese society.

Naka City

Our primary site, Naka City, is one of the largest cities in Japan. As with most Japanese urban centers, the city is well-connected to the rest of the nation via its port and airport, as well as by private and national railway lines. While Naka City is generally prosperous, some wards of the city have high concentrations of low-income families as well as *burakumin*. No one industry predominates; shipping, textiles, electronics, and automotive factories all play a major role in an economy where 24 percent of the labor force is employed in manufacturing and 23 percent in the service industries. The unemployment rate in 1992 was a little over 3 percent, and the median

household yearly income was around $95,000 (where 100 yen = 1 dollar). To help protect the identity of participants in this study, citations to literature which specify the locale or otherwise might aid in the identification of participants and schools are not provided in this report.

Naka is an international city. Exhibits from the United States, China, and other countries are on tour in local museums and in the galleries sponsored by large department stores. Consumers can avail themselves of products from countries as diverse as Germany and the Philippines. Yet in the cramped streets of the residential areas, a tiny family restaurant with only two booths and three stools might offer its customers bowls of the local noodle specialty. Like many Japanese cities, the foreign population is not readily evident outside of the central shopping areas or universities. In some parts of the city near the outer perimeter, small tracts of land are still under cultivation. In the city center, space is at a premium and tiny, ancient shrines can be found that are surrounded on three sides by massive skyscrapers.

Naka City is home to roughly 150,000 pupils enrolled at the elementary level, 75,000 at the junior high school level, and 90,000 at the high school level. The student population at the high school level is nearly equally divided between private and public high schools which makes the number of students attending private high schools in Naka city higher than the national average. Over 30 percent of high school students are enrolled in nonacademic courses, somewhat higher than the national average of about 25 percent *(Monbusho, 1996)*. Official statistics show that at the elementary and junior high school levels there were approximately 20 pupils per teacher in 1992. In reality, junior high school classes range from the midthirties to over 40 students per class. Most schools, particularly those in the older sections of the city, have very little physical space. Per pupil funding for the city as a whole in 1992 was about $5,500 per child per year for both elementary and junior high schools. Because the city is essentially one school district, there is no difference in per child allocations between more and less affluent sectors of the city.

Kita City

Both of the secondary field sites, Kita City and Minami City, are regional hubs and the major cities in their respective prefectures. Kita City lies far in the north and is home to world-class skiing while Minami City has a climate that residents of the U.S. Deep South would find familiar. Both are connected by rail and air to the rest of the nation. While most young Japanese speak only standard Japanese, older residents of Kita City speak a distinctive dialect quite distinct from standard Japanese.

Kita City is home to less than 300,000 people compared with Naka City's millions. This gives Kita a more relaxed and open feeling. Large, covered avenues hold a wide

range of shops, and the central part of town can be traversed by foot in less than an hour. Parks are abundant and offer spectacular views of the adjacent, snow-covered mountains. No one industry dominates Kita's labor market. Unemployment data were unavailable. The per capita income in 1991 was about $30,000. Many family farms still exist, and there is considerable emphasis in the winter months on tourism.

The official student-teacher ratio in Kita is similar to Naka: about 20 to 1 at the elementary and junior high school level. Although classes tend to be larger than this, they are not as crowded as in Naka's schools. For Japan, the population density is quite low–only 600 people per square kilometer. Because land is not at a premium, schools tend to have large playgrounds and activity areas. There were about 20,000 students at the elementary level, 10,000 at the junior high school level, and over 15,000 at the high school level in 1992. Per pupil funding in 1992 was about $7,000 per year for both elementary and junior high school students.

Minami City

Minami City has a long history as a prosperous port city with a large fishing industry. Seven percent of the total population works in manufacturing. The unemployment rate at the time of this study was just over 2 percent. Per capita income in 1990 was about $30,000 and the median household income around $75,000. The population density of Minami (around 3,500 people per square kilometer) is less than half that of Naka's over 6,000 people per square kilometer.

There were over 90,000 students in Minami's elementary schools and nearly 50,000 in its junior high schools. In 1993, the high school enrollment was over 60,000. The student-teacher ratio is similar to Naka and Kita, but the per pupil spending was somewhat lower: about $4,800 at the elementary and $5,500 at the junior high school level. Minami is home to several universities and junior colleges.

The Schools

Given this general description of the system of education and the field sites, we now turn to the schools themselves. In Table 3, the schools and their relative academic standing are listed. The determination of the schools' academic level was made by Professors Nagano and Sawada based on data collected on schools in Japan by the National Institute for Educational Research. The academic standing of schools, particularly at the junior high and high school level, is primarily derived from an analysis of students' high school and college entrance exam scores at each school. So, for ex-

ample, those schools which ultimately send the largest percentage of their student body to top ranked universities are the most highly ranked schools in Japan.

Table 3—Sample schools and academic level

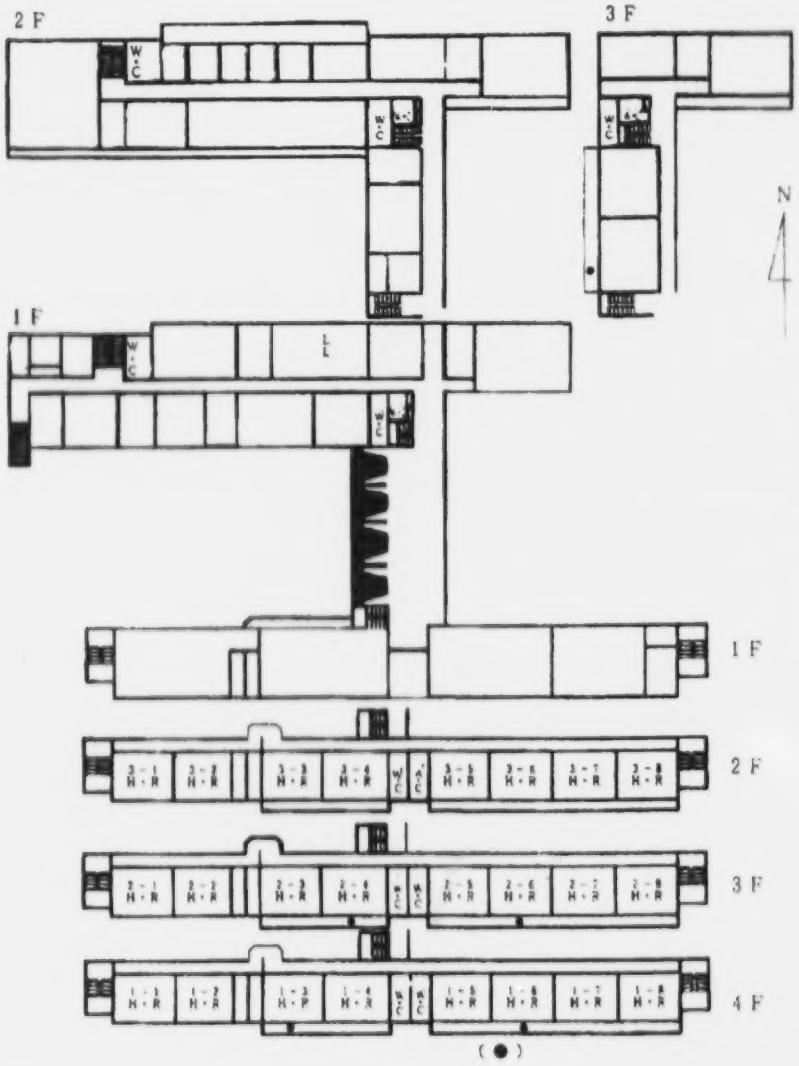
School	Level
Elementary	
Matsu Elementary	High
Minami Elementary	Middle
Tancho Elementary	Middle
Kita Elementary	Middle
Hasu Elementary	Low
Junior High School	
Chuo JHS	High
Kita JHS	High
Midori JHS	Middle
Minami JHS	Middle
Shimogawa JHS	Low
High School	
Meiji HS	High
Kita HS	High
Minami HS	High
Arata HS	Middle
Naka Vocational	HS Low

SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95.

Japanese schools present a rather austere facade to the U.S. eye. The vast majority of schools are three-story ferro-concrete structures with little or no external decoration. At most schools, the office is located near the main entrance, which is marked by a sliding iron gate. Figure 1 shows a copy of the floor plan of one of the high schools that we visited. This school, located in one of the secondary sites, is also equipped with two gymnasiums, a martial arts practice hall, and a pool. The rooms marked "3-1 HR" and so forth are the students' homerooms where they spend most of their day. As is typical in most Japanese high schools, the third-year students all have their homerooms on the top floor and the first-year students on the bottom floor. Special purpose rooms, such as the language laboratory, are located in a separate wing connected by a hallway.

In large, sprawling schools like Naka Vocational, the gym and various classroom buildings are connected by long hallways. As is the custom in Japanese homes, street shoes are not worn in Japanese schools. Students and teachers have separate entrances which are equipped with shoe boxes to store street wear and school slip-

Figure 1—Example floor plan of a Japanese high school



pers. Students must purchase a specific kind of slipper–usually blue, green, or brown and made of tough plastic.

Day-to-day cleaning and maintenance of the schools and grounds are done by students and teachers, although most schools employ one or two workers as custodians. Since many Japanese schools do not have central heating or cooling, classrooms

are heated by kerosene stoves. A few students from each class are responsible for making sure that the daily supply of kerosene is delivered and the classroom stove is filled. There is also a daily cleaning period when students and teachers sweep the floors, empty waste baskets, and dust the shelves. Once a month or so, the teachers organize a larger cleaning period. At these times, students may wax the hallway floors, clean out mud from the gutters around the edges of the buildings, or pull up weeds and grass that have encroached on the large, sand-covered playing fields.

In most Japanese schools there is usually a large outdoor recreation area in front of or behind the school where students play baseball, tennis, soccer, and other outdoor sports. In the rural areas and smaller cities where land is less expensive, separate fields for soccer and baseball as well as tennis courts can be found. All of the schools we visited had playing fields of various sizes. At elementary schools, this area often is equipped with brightly colored playground equipment for the benefit of the smaller children. Students often use this equipment after school and on weekends.

Contrary to images common in western media, most Japanese students enjoy going to school, because it is a place for them to meet friends and participate in extra-curricular activities. In sharp contrast to the often somber buildings, Japanese classrooms are animated, lively places when students are relaxing between classes during their 5 or 10 minute breaks. The rhythm of life in Japanese schools is one where study time is punctuated with ample opportunities for socializing.

The schools in our sample are typical of public schools in Japanese urban and suburban areas. The schools run the gamut from very old schools with long traditions to very new ones equipped with the latest conveniences. None of the schools seemed extraordinary compared to the schools that we had visited on previous research projects.

Kita City Schools

Kita Elementary, with a student population of over 500, was tucked into a quiet neighborhood at the edge of the city, while Kita Junior High School, which enrolled roughly 550 students, was more centrally located. Both of these schools have been around for a long time: Kita Elementary has been preparing children for roughly a century and is one of the most respected schools in the city.

The three schools in Kita City appear to be either average or outstanding in terms of the academic ability of their students. In sharp contrast to the elementary and junior high school, Kita High School, with over a thousand students, is rather new and is located in the recent suburban developments on the far outskirts of the city. As Kita is

an advancement school, most of the students hope to attend 4-year colleges upon graduation. In the last 5 years, Kita High School has placed nearly 800 of its graduates in national 4-year colleges and well over 1,000 graduates in private 4-year colleges.

Minami City Schools

Minami Elementary and Minami Junior High School lie on the outskirts of the city in a mixture of farmland and suburbia where new apartment complexes and green rice fields exist side by side. There were about 600 students enrolled in Minami Elementary and about 730 in Minami Junior High School. Minami High School, on the other hand, is a large school with nearly 1,300 students located in a more developed portion of the city. It is one of the most prestigious schools in the area, and each year many graduates go on to enter elite universities.

Naka City Schools

High schools. Naka Vocational High School is a large ferro-concrete, three-story school just across the street from a commuter railway line. The students are divided into several courses or lines: mechanical, electrical/information (computer), and chemical engineering. Of the school's nearly 850 students, fewer than 10 are female. Over 50 staff members are listed as instructors in the school guide. The school also houses a night school which starts around 6 p.m. From 1994 on, the two schools were given separate staff and administrators, although the same principal was in charge of both. We did not interview students or staff at the night school.

In comparison with Naka's dilapidated exterior, Arata High School seemed to be an extension of the brand new sports facility near the school. Arata is also a ferro-concrete structure but has more amenities: there is a two-tiered gym which houses a martial arts hall below and basketball courts above. Whereas the families of Naka Vocational could best be described as working class, Arata's parents seemed to be mainly from the middle class of store owners, clerical workers, and white-collar workers *(sarariman)*. Over half of the 1,200 students at Arata are female. Nearly 60 staff members are listed as instructors, and the school offers a wide variety of clubs. Arata is generally considered a middle-ranked school, which means that although most of its graduates go on to college, few are aiming for the best national or private universities.

Meiji High School is the oldest high school of the three. It boasts a long and venerated tradition of promoting students' individual interests along with academic success. Last year, Meiji made the list of the top 10 high schools in Naka City in terms of sending students on to Tokyo, Kyoto, or other top-ranked universities. About 50 per-

cent of third-year students go to *juku*. Parental levels of income at Meiji seemed higher than at Arata, with more families at the professional-managerial level. There are 40–44 students in a class, 10 classes per grade. Like Arata, the school is divided into two sections, literature and science. Over 400 students enter each year from nearly 120 junior high schools; about one in 10 junior high school applicants are admitted. Nearly 100 percent of Meiji graduates go on to some type of 4-year college.

Junior high schools. Like high schools, Japanese junior high schools can seem rather austere. In the vast majority of schools, one side of the classroom has large clear windows facing outside while the other has opaque glass windows which face the corridor. There are no lockers, and students store their belongings either on hooks in the corridor outside the classroom, in their desks, or in small cubbyholes built into the back of the room. In many schools there are little or no decorations in the halls. Classroom walls tend to be taken up with chalkboards in the front and back; schedules and school announcements are tacked up on the cork message boards. There is usually a class motto (e.g., Independent Spirit! or Never Give Up!) written in calligraphy above the front of the class, and occasionally one sees certificates that class members or teams of members have won in local contests.

Chuo Junior High School, at 30 years of age, enrolls over 350 boys and girls. The family economic background of the students seemed quite high, with many families owning their own businesses in the multi-storied buildings of the surrounding neighborhood. Shimogawa Junior High School is located in a much less prosperous part of town than Chuo. Like Naka Vocational High School, Shimogawa is located in an area of older homes and working-class families. The school is a large one, with over 800 boys and girls. Because of its 40 year history and large enrollment, the grounds are somewhat cramped. Midori is the smallest of the three Naka junior high schools. The families seem to be somewhat more affluent overall than at Shimogawa, and the houses in this area are larger than in Shimogawa and the gardens better developed. The school is nearly 50 years old and is experiencing declining enrollments.

Elementary schools. Similar associations between economic circumstance and school atmosphere were evident at the elementary school level. Parents of Hasu Elementary students appeared to have the lowest level of income and most parents work in small shops, factories, and the entertainment industry. In contrast, Matsu Elementary is located in an affluent neighborhood near a major university. Tancho Elementary School's students come from a neighborhood of prosperous shops and fine homes. These differences in neighborhoods have a relatively greater impact on the lives of children than on adolescents, because children do not have the freedom to travel so far from home. Consequently, the students at Matsu and Tancho played in quiet neighborhoods with numerous small, curving streets that reduced traffic hazards, whereas the children at Hasu played in neighborhoods that were semi-industrialized.

Hasu is located near Naka's harbor in a working-class neighborhood. Many of Hasu's children come from single-parent homes. Matsu Elementary is at the other end of the economic spectrum from Hasu. Located in a neighborhood of large private homes with meticulously sculpted shrubs, students at Matsu enjoy a very high standard of living. The neighborhood is also within walking distance of buses, the subway line, a university, and an upscale shopping district with fine restaurants. The students at Tancho Elementary also come from well-to-do homes. This is, again, a prosperous neighborhood, and teachers noted that there were few student problems.

School Summary

The 15 schools in Kita, Minami, and Naka cities are representative of the differences found within the Japanese public school system. While the national and local governments make great efforts to ensure that the curricula offered in elementary and junior high schools are the same across the region and neighborhood, the neighborhoods are important in determining the kinds of academic and cultural opportunities children have outside of school. Smaller cities like Kita lack the large *juku*, which offer the best college preparatory courses. The children of affluent neighborhoods like those around Chuo Junior High School and Matsu Elementary have more money to spend on sports equipment and access to better parks and recreational facilities. The students at Hasu Elementary do not have the luxury of trying to catch minnows in the irrigation canals that flood the rice fields around schools like Minami Elementary.

At the high school level, the effects of neighborhood become less significant. Students compete inside large school districts for entrance into high school. Any school with a good reputation will draw students even if, as is the case with Meiji High School, the school is not located near train or subway lines. Students at a given high school tend to come from the same family backgrounds—not because students all come from the same neighborhood, but because the entrance exams and school hierarchy function to stream students with similar academic abilities and backgrounds together. Regional effects are still strong because high school students in small cities do not have access to large *juku* or to the many cultural and athletic facilities available in large urban areas like Naka City.

The Current Climate in Education

Reforms in education generate enormous debate in Japanese society. In the recent past, the Ministry of Education's reintroduction of moral education created a national controversy. Attempts to reintroduce symbols or materials that had connections with

the war-time government, such as the national anthem and saluting of the national flag, met with stiff opposition in the schools. The question of what should be taught in social studies and moral education courses remains a source of significant discontent among many Japanese. Parents and teachers alike are critical of the examination system, the *juku*, and the perceived lack of individuality in the classroom.

Most educators are keenly aware of the fact that around the world Japanese students are regarded as good at taking tests in math and science but unable to apply their knowledge creatively to new situations. There is significant discontent among the population in general with the lack of creativity in the schools and the difficulty that individuals have in expressing their own ideas given the pressure of studying for the entrance exams. To provide students with more time to call their own, the Ministry of Education has asked schools to foster individual differences *(kosei kyo iku)* and has begun reducing the number of days per week that students go to school. Currently, students get two Saturdays off each month with the long-term goal of no-school on Saturday to be implemented at an unspecified future date. But because of the complexity of Japan's education system, even such straightforward measures as reducing the number of school days in order to give students more free time can have paradoxical effects. While many parents are dissatisfied with the lack of time for individual expression in schools, they also want teachers to assure their sons' and daughters' success on the entrance exams. Teachers are now caught in a bind–they must reduce the school week, but they must still cover the same amount of material. In many schools, the result has been for teachers to propose eliminating club activities or "free periods" *(yutori jikan)* from the school week, an action most teachers recognize as having a negative effect on their ability to foster individual expression and creativity in school.

Outline of This Volume

Interviews and observations conducted at these 15 schools provide the core of the data used in this volume. The chapters are arranged by topic, and each author focuses on different details or aspects of the education process of education.

Douglas Trelfa discusses the effects of national standards on education at the primary and secondary level. Some of the central questions addressed in this chapter are: How are standards understood within the culture? How are standards implemented, and who is responsible for this implementation? What is the effect of standards on the science and math curriculum?

Hidetada Shimizu probes the topic of individual differences, addressing how Japanese schools deal with each individual learner. This chapter also deals with the broader issues of tracking and individual inclusion in classrooms. Shimizu discusses how individuality and creativity are constructed in significantly different ways in Japan using examples from classrooms to illustrate these points.

Gerald LeTendre examines adolescent lives, focusing on the intricate relations between peer groups, the family, and life inside and outside of school. He addresses how adolescence is conceptualized in Japan and the role school plays in the lives of young Japanese. In this chapter, the stresses and problems of students are discussed as well as how students view math and science.

Finally, **Carol Kinney** looks at the day-to-day lives of teachers and analyzes how Japanese views of work and professionalism affect teaching. She details the day-to-day work of teachers, their working conditions, and discusses their status in society. She also looks at teacher training and investigates how, and in what way, teachers learn their profession.

Chapter 2

The Development and Implementation of Education Standards in Japan

By Douglas Trelfa

Research Methodology

The field research on national standards focused primarily on interviews and conversations held with teachers, administrators, students, and parents, as well as on observations in classrooms, on school premises, and in everyday settings. All interviews were conducted in Japanese, tape recorded, and later transcribed and translated into English for storage and analysis.

At the primary site, Naka City, Douglas Trelfa conducted all of the interviews and observations pertaining to the topic of national standards, except for a few interviews with officials at *Monbusho* and those with school board members and professors of mathematics education, which were conducted by Eileen Wu. Naoko Moriyoshi collected interview and observation data at the schools in Minami City, while Gerald LeTendre collected the interview and observation data in Kita City. Wu, Moriyoshi, and LeTendre shared their data with the author, and these data were included in the analysis, and are reflected in this chapter.

In pursuit of information on national standards, the four researchers conducted 31 interviews at academic high schools, 9 at vocational high schools, 43 at junior high schools, and 15 at elementary schools. Of the total number of interviews pertaining to this topic, approximately 15 were held in Minami City and 19 in Kita City. In addition, approximately 32 classroom and general observations were included in the data analysis. Printed information obtained from schools, school boards, education research institutes, and *Monbusho* was also integrated into research findings in this chapter.

All introductions to schools were arranged through the National Institute for Educational Research in Japan and cleared with the proper local school boards. Many of the Japanese interviewees appeared uncomfortable at first with the unstructured interview format. Most requested a list of questions before the interview. Consequently, many of the interviewers began quite formally, and most interviewees appeared tense or reserved at first. However, the researchers found that as the interview progressed, the interviewees became less tense and were able to talk freely and at length.

Another factor contributing to the initial tension in the interviews was the fact that nearly all of the interviews were conducted in principals' offices. Third parties, such as principals, vice principals, or teachers, were present during many of the interviews. The interviews with students were all conducted as group interviews, with all but one being supervised by a principal or vice principal. No interviews for this topic were held outside the school. It is unlikely, therefore, that critical perspectives were adequately represented in this research.

We believe that our sample includes students of above average ability and consisted mostly of student council members. Teachers were often selected on the basis of availability on the particular day we were visiting and their willingness to cooperate. In most cases, the interviews with teachers were conducted with teachers whose classrooms we observed. Almost all parents interviewed were members of the PTA.

Monbusho and the National Curriculum

The Japanese Ministry of Education (*Monbusho*) plays a central role in the development and maintenance of national education standards in Japan. The Ministry develops national curricular guidelines which comprise the educational standards. In addition to the national curricular guidelines, the Ministry enforces academic standards by certifying textbooks, overseeing regional and national entrance examinations, and regulating the training of teachers.

Development and Revisions of the Monbusho Curriculum

Standards of education in Japan are based on the *Monbusho* curricular guidelines. *Monbusho* develops and revises national curricular guidelines approximately every

10 years. This has been the case since the end of World War II when the first course of study, based on an American model, was introduced. These 10-year revisions have allowed *Monbusho* to respond to changes in national priorities in education.

Revisions of the *Monbusho* curriculum are developed by *Monbusho*-led review groups that consist of *Monbusho* officials and nationally recognized education authorities. The content of these meetings are widely publicized.

Revisions of the curriculum are first published as a set of proposed curricular guidelines. The proposed curricular guidelines have typically consisted of the following: a survey assessing the old curriculum, a delineation of new curriculum goals, a proposal for a new curriculum, and an evaluation of the proposal by an in-service teachers' group. For a period of 3 years following the initial publication of the proposed guidelines, *Monbusho* finalizes and conducts tests of the new curriculum at selected schools. This gradual approach allows time for dissemination and ample time for schools to implement the curricular reforms.

History of Curriculum Revisions

The first post-war *Monbusho* curriculum was implemented in 1947 after the United States returned sovereign powers to Japan with the signing of the San Francisco Peace Treaty. This curriculum emphasized life experiences and practical knowledge. The second national curriculum, which was implemented in 1958, emphasized basic academic skills, particularly in arithmetic and Japanese. *Monbusho* continued the policy of higher academic standards with the third curriculum, published in 1968. This curriculum also reflected *Monbusho's* attempt to modernize the Japanese education system. As part of the modernization effort, *Monbusho* sought to integrate the junior high school and elementary school curricula more effectively and to improve the curricula in all subjects. Improvements in math and science education were integral parts of the modernization effort.

By the late 1970s, the Japanese Teachers' Union and others began expressing concern over what they called "educational overheating" (*kyoiku no kanetsuka*). According to these critics, Japanese students were studying excessively hard because of the increasing focus on entrance examinations and entrance into highly ranked colleges. In an effort to cool down the "educational overheating" and respond to these critics, *Monbusho* reduced the total number of class hours by 10 percent in the curriculum revision of the late 1970s.

Recently, some Japanese policy makers have expressed the opinion that curricular revisions should be more frequent in this age of rapid social change in Japan. In re-

sponse to these suggestions, *Monbusho* and its advisors are currently considering a revision period of 8 years.

New Curricular Guidelines

The current curricular guidelines (The New *Monbusho* Curriculum) were published as a set of proposed guidelines in 1988. Implementation has been in stages, with the elementary school curricular guidelines having been implemented in 1992. The new curriculum includes a reduction of emphasis on arithmetic and science in the early school grades. Since 1968, arithmetic has been reduced from about 19 percent to 17 percent of the sixth-grade total class hours. Likewise, science has been reduced from about 13 percent to 10 percent of total class hours (Calculations based on data presented in Mizuhara, 1992).

The new curriculum establishes more electives in junior high school. In addition, there are changes in moral instruction and in the treatment of the Japanese national anthem and flag. Overall, the new *Monbusho* curriculum mandates the following major changes:

- comprehensive reform of moral instruction,
- merging of science and social studies in the first and second grades into a new subject, the study of life activities (*seikatsuka*),
- increase in the range and number of electives in junior high school,
- creation of two new subjects in high school (earth history and citizenry) by reorganizing the old social science subject, and
- reforms in the treatment of the national flag and national anthem in school.

Monbusho describes the new curriculum as being based on "a new perspective on academic ability" (*atarashii gakuryokukan*). The purpose for this shift in policy was explained by an education official: "Knowledge-centered education was taught to students in the past, but now we want to find ways of motivating them to learn. This is the area we are putting great effort into at present."

With the new curriculum, *Monbusho* states that it is seeking to cultivate students who are, in the words of one teacher, "creative, philosophical, able to make judgments and decisions and able to express themselves." These are the qualities that some reformers of Japanese education have said the *Monbusho* curriculum and Japanese schools did not emphasize in the past and that they hope can be cultivated among Japanese children currently in school.

Dissemination of the Curriculum Revisions and Reforms

Information about revisions in *Monbusho's* curriculum guidelines reaches the schools through *Monbusho* publications and a series of scheduled workshops that are to inform schools of the changes in the curriculum.

Monbusho also publishes its curricular guidelines and makes these guidelines widely available. There are three sets of guidelines, one each for elementary, junior, and senior high schools. Each of these three sets of curricular guidelines is available in soft cover at any major bookstore in Japan. Each booklet of curricular guidelines is anywhere from 120 to 220 pages in length and costs under $5.

These guidelines in turn are used by textbook publishers, regional education authorities, schools, and teachers to develop curricular materials that conform to the national guidelines. Although this system gives a great deal of responsibility to education authorities in the prefecture and city, it is not uncommon for Japanese children in widely separated regions to be studying the same topics during any given week, for reasons that will become clearer in the remainder of this chapter.

After the publication of the revised curricular guidelines, *Monbusho* schedules a series of workshops throughout the nation for representatives of regional boards of education and for school teachers. These participants, in turn, conduct workshops for other teachers in their own school districts. Several of these workshops are scheduled each year between the publication and implementation of the guidelines. After the official implementation of the curricular guidelines, workshops are conducted less frequently, about once a year.

In spite of its considerable administrative powers, *Monbusho* does not closely monitor conformity to the national curricular guidelines at the school level. *Monbusho* policy allows local boards of education and schools to make adjustments in the national curricular guidelines that are considered to be appropriate for the local level.

However, our discussions with regional officials indicate that regional boards of education typically tend to interpret the *Monbusho* guidelines strictly. Schools are also allowed to formulate their own curricula as long as the schools' curricula are based on the *Monbusho* curriculum guidelines. However, since the task of devising a school curriculum involves considerable effort by teachers, most schools adopt the curriculum developed by the municipal board of education.

To facilitate the proper implementation of the curriculum, the *Monbusho* curriculum guidelines make clear the content, the desired order, and the duration of instruction for all subjects and all grades. The topics of study for each school subject during each school year are listed, but detailed descriptions of instructional material are not presented. For example, the course of study in mathematics for the eighth grade presents algebraic calculation of formulas as the first topic and methods of data analysis and frequency distributions as the last. The guidelines do not contain descriptions of formulas that need to be memorized, or other explicit descriptions of content.

In summary, the *Monbusho* develops national curricular guidelines for elementary, junior, and senior high schools approximately once every ten years. The curricular guidelines are published and made widely available. Prior to and after publication of the guidelines, *Monbusho* schedules workshops throughout the country in order to disseminate the new curricular guidelines to regional boards of education and school teachers. The regional boards of education are invested with the task of interpreting the curricular guidelines and developing materials that are appropriate for the region. Schools are also given authority to develop curricula based on the national curricular guidelines. Education authorities we interviewed indicated that schools and regional boards of education tend to follow the guidelines closely in part because developing material independently is time-consuming.

Implementation of Monbusho Curriculum Within the Schools

Textbooks. Instead of publishing its own textbooks, *Monbusho* allows private companies to publish textbooks that are reviewed at *Monbusho* for conformity to the curriculum and quality of presentation. Textbooks that survive this review process are designated as being approved. Only textbooks approved by *Monbusho* can be used for instruction in public schools. The number of text books approved depends on the grade level. For basic subjects in elementary school six or more companies may publish a series. For some subjects at the high level the number is smaller.

The Authorization and Research Council at *Monbusho*, which approves textbooks, consists of university professors and teachers in elementary and secondary schools. These experts are appointed by the Minister of Education and the *Monbusho's* senior curriculum specialists. The Authorization and Research Council insures that the *Monbusho's* curriculum standards have been followed. Each member of the Council examines proposed textbooks separately before the Council meets. The *Monbusho* Minister makes the final decision about certification upon receiving the Council's recommendation.

Monbusho designates three levels of textbooks (easy, medium and difficult) for high schools, but only one level for elementary and junior high schools. However, *Monbusho* certifies more than one textbook for each subject and grade in elementary and junior high schools. Schools can choose their own textbooks as long as the textbooks are approved by *Monbusho*. In addition, *Monbusho* does not require that textbooks be completely covered by teachers. According to an education official in Naka City,

> It is not necessary to cover all the material in the textbooks.
>
> It is not to be followed word for word. We say that one should 'teach *with* the textbook' not 'teach the textbook'.

The curricular guidelines are in outline form and the details of textbooks vary, depending on how authors use the outline.

Companies that publish student textbooks also publish teachers' manuals (*kyoshiyo shidohyo*). The use of the manuals is not mandatory. However, the teachers' manuals contain explanations of the textbook, good examples, and points about teaching. According to one teacher, "There are teachers who do not think that the manuals are necessary." It is not clear whether the typical Japanese teacher uses these resources frequently, but our conversations suggest that they are used by most teachers when planning lessons.

To supplement their own textbooks, which they receive from the school, students also use inexpensive booklets of practice problems sold by the school, and drill books, which are available at local bookstores. These drill books contain problems related to the textbooks and are available for arithmetic, science, and Japanese language. Drill books are more expensive than the booklets of practice problems but are popular among parents of children in elementary school.

Other resources for curriculum implementation. In addition to the *Monbusho*-approved textbooks and teachers' manuals, Japanese teachers may also rely on instructional plans (*shidoan*) in conducting their lessons. These instructional plans are included in some teachers' manuals. Teachers also develop instructional plans on the basis of demonstration classes for which they prepare detailed written lesson plans. The plans are then distributed to the teachers who observe their demonstration classes. The instructional plans provide information to teachers about various ways one can teach each topic effectively. For example, the instructional plan typically spells out the amount of time the teacher should spend on each instructional task.

Figure 2 is a translation of an instructional plan. Information about the general relationship of the day's topic to previous and forthcoming topics is provided, as well as

Figure 2—Translation of instructional plan

Seventh Grade, C Group: Instructional Plan

12-12-1994 (Thursday) 3rd Period Instructor: Mr.T

1. Unit Change and Correspondence

2. Instructional Plan
   - Simultaneously changing quantities . . . . . 2 hours
   - Direct proportions . . . . . 2 hours
     (Today 2nd of 2)
   - Graphs of direct proportions . . . . . 3 hours
   - Indirect proportions and graphs . . . . . 3 hours
   - Wrap-up . . . . . 1 hour

3. Today's instruction
   (1) Goal: Investigate the properties of direct proportions
   (2) Preparation: Printout
   (3) Related Curriculum: 8th grade first order equations
   9th grade first order equations

4. Instructional Process:

Time allotment	Content of Instruction	Learning Activities	Areas of instructional emphasis	Evaluation Perspective
7 minutes	Review of direct proportions	Review of previous period	Evoke the nature of direct proportions using proportion from previous period	Determine by students raising hand
15 minutes	Have students find examples of direct proportions using graphs	Using various graphs of proportions find the relationship of direct proportions	Make students aware of what qualities make a direct proportion	Determine the degree of student problem solving by walking around students' desks and watching their activities
17 minutes	Examine two quantities that change in equation and graphic form	Find the relationship of direct proportions from 2 changing quantities using equations, graphs, and nature	Make students think on their own. Make students answer the reason for the relationship of direct proportions	Determine student comprehension by calling students up to the board and having them write down answers
6 minutes	Have students draw a graph that includes negative numbers	Write a graph of direct proportions including negative numbers	Make students understand that direct proportions can include negative numbers	Going between desks, determine understanding by seeing how students are doing on their printouts

SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95.

instructions to the teacher for conducting the lessons. Examples for use in class are also provided.

Monthly meetings. Teachers stay involved with the implementation of curricula through committee work at school. At the school level, Japanese teachers coordinate the implementation of the curriculum through monthly departmental meetings, which are scheduled during a designated preparation period. These monthly departmental meetings are a forum for Japanese teachers to interact and exchange information with colleagues about curricular issues. We found that these meetings were used by math and science teachers to coordinate instruction and coverage of topics with other teachers, and, importantly, to articulate concerns and make group decisions regarding instruction.

Measuring School Performance

Although students are tested in their classes on knowledge of the curriculum, formal measurement of school performance is not conducted by *Monbusho*. According to local education officials, *Monbusho* began a nationwide testing program for all students in each grade of elementary and junior high school about 30 years ago. This created an unexpected situation in which schools became highly concerned about performance relative to other schools. Consequently, some schools conducted dishonest practices to raise averages, such as asking poor achieving students to stay home. The testing of schools was discontinued because of these abuses and also because of opposition from members of the Japanese Teachers' Union who objected to the monitoring of school performance.

Currently, *Monbusho* conducts an academic achievement test on a national sample of schools to obtain an estimate of student attainment of the curricular objectives. These data are used to infer the percentage of the curriculum that is being mastered. *Monbusho* then determines what topics in the curriculum seem too easy or too difficult for each grade level and uses this information in revisions of the curriculum. An important informal measure of school performance is the fact that newspapers publish and everyone in an area knows school performance based on *Shingakuritsu*, which refers to the percentage of students progressing to good schools at the next level.

Elementary Schools

Elementary School Curriculum

Schools are required to provide students with the "official curriculum" throughout their 6 years at elementary school. Consistent with the concept of a uniform curriculum, *Monbusho* does not allow the tracking of students into ability groups at the elementary school level. The only exceptions are for students judged to have major emotional, developmental, learning, or physical disabilities. These students either attend special schools or classes and follow a different curriculum.

The standard number of school hours that must be devoted to instruction at the elementary school level is part of *Monbusho's* curriculum guidelines. These guidelines also specify the number of instructional hours (50 minutes per class hour) required for each subject (Table 4).

In an effort to help Japanese students master and understand arithmetic, the *Monbusho* curriculum designates that third-graders receive instruction in the use of the Japanese abacus (*soroban*), a tool many Japanese we interviewed regarded as useful in promoting children's skills at calculations and in promoting understanding of numbers.

The latest curricular revisions have had minimal impact on the difficulty of arithmetic at the elementary school level, but the introduction of the new curriculum has resulted in some changes in the curriculum. One official informed us that about 10 to 20 percent of the math curriculum has been "moved around" in the latest revision of the curriculum. Certain mathematical topics, such as finding the volume of a cylinder, have been moved from junior high school to elementary school. Conversely, mathematical topics that were considered too difficult for certain grades have been moved up to higher grades. Despite efforts to match the curriculum to the cognitive level of students, some parents and educators with whom we talked indicated that many students begin having problems with arithmetic around the third or fourth grade.

Life activity subject. The new elementary school curriculum emphasizes personal learning experiences, or (*taikengakushu*). The newly created subject 'study of life activities' (*seikatsuka*) for first- and second-graders was created by *Monbusho* to provide such personal learning experiences to Japanese students in a formal, school setting.

Table 4—Standard number of school hours in Japanese elementary schools

Subjects	Grade					
	1	2	3	4	5	6
Japanese language	306	315	280	280	210	210
Life activities	102	105	105	105	105	105
Arithmetic	136	175	175	175	175	175
Science	—	—	105	105	105	105
Music, arts & handicrafts, and homemaking	136	140	140	140	210	210
Physical education	102	105	105	105	105	105
Moral education	34	35	35	35	35	35
Special activities	34	35	35	70	70	70
Total	**850**	**910**	**980**	**1,015**	**1,015**	**1,015**

SOURCE: Jichi Sogo Center, 1991
NOTE: Implemented in April 1992

The 'life activity' subject merges the study of science and social studies. 'Life activity' was created by *Monbusho* because it was decided that first- and second-grade students were not ready to study science in the traditional way since they lacked sufficient personal life experiences that form the basis for interest in the sciences. Several teachers said they believed that this lack of personal life experiences is the result of urbanization, whereby children have lost opportunities to interact with nature. One teacher described how young Japanese children living in cities do not have many opportunities to experience the pleasures of picking flowers, catching frogs and insects, or watching falling stars.

In an effort to provide experiences missing in an urban setting, one designated activity of the 'life activity' curriculum involves students raising rabbits. The principal of Matsu explained:

> We raise rabbits. Although we don't have the money and can't make enough room for them, we are raising rabbits. As for me, I would like the first- and second-graders to feed the rabbits every morning. While doing that, they will eventually discover that rabbits eat cabbage but not wheat. And they will learn that there are things rabbits will and will not eat. And they can learn, if they hold the bunnies, that the mother will protect the bunnies. And they can learn that a rabbit is warm and puffy. In the process of raising rabbits, they learn these things. But, let's say this is a science class. Then, the teacher would say 'let's find out what rabbits do and do not eat.' It is the teacher who would be separating the food.

This principal suggested that the experiences the 'life activity' subject is trying to provide for children are not easily taught by schools, where the fear of liability and insurance premiums are also considerations. The primary goal of the 'life activity' lessons is to get students to understand and to take responsibility for activities in their everyday lives. Despite the problems some Japanese educators may see with the 'life activity' subject, the 'life activity' subject reflects the policy of *Monbusho* of providing an elementary school education that stimulates interest in learning.

A typical elementary school lesson. The pace of the elementary school curriculum is illustrated by an actual lesson that is typical of those we observed in Japanese elementary schools. The goal of the 45-minute arithmetic lesson was to have students understand that fractions could be both greater than and less than one. The following observational notes describe this lesson.

> The teacher is a female in her thirties, Mrs. H. The students (about 40) are sitting quietly at their desks. All students have colorful plastic cards with animated figures on which they put the printouts on which the class is working.
>
> The subject of today's lesson is fractions. Mrs. H. places a magnetized yellow strip on the board that is exactly 1 meter in length. Below the yellow strip, she places a pink strip a half a meter in length, a blue strip a third of a meter in length and a green strip a quarter of a meter in length. Finally, above all of these measured strips, Mrs. H. places a red strip of undetermined length that represents the width of Masako's outstretched arms.
>
> Mrs. H. tries various combinations of strips in order to match the length of the red strip. While doing this, she asks frequent questions of the students. Students are attentive and very quiet as she speaks. Finally, Mrs. H. is able to make five one-quarter meter strips match the length of the red strip. She asks the students what the length of the red strip is. Students, with open textbooks, do not seem to understand and no responses are given.
>
> The teacher reassures students that they will understand the concept. Moving to a television monitor hanging from the ceiling in the corner of the room, the teacher projects a copy of the same printout that students have on their desks. The printout has three problems.
>
> 1. Let's record the length of both arms outstretched.
>
> Masako ___ m X _____ therefore = ____ m
> Friend ___ m X _____ therefore = ____ m
> Teacher___ m X _____ therefore = ____ m
>
> 2. Draw in the following with a colored pencil.
>
> 3/5 meter
> 5/5 meter
> 7/5 meter

3. Write the fractions that are represented by the shaded regions.
   1/4 meter is shaded
   3/4 meter is shaded
   1 and 3/4 meter is shaded

The teacher explains the printout by using the television monitor and projection system. After explaining the printout, the teacher instructs students to break up into groups of four and five. The teacher gives each group a set of strips of colored paper. Students put their desks together and lay out the strips. Students work together and appear to be on task, although the students have become boisterous.

Mrs. H. alternates between making comments to each group and providing instructions to the whole group. For about 5 minutes, the students become quiet and focused on the task, without intervention by the teacher.

Mrs. H. gives one strip at a time to the groups. The groups of students begin working with the strip of paper that represents the length of Masako's outstretched arms. Then, after 10 minutes, the students return Masako's strip for the friend's strip. After another 10 minutes, the students exchange the friend's strip for the teacher's strip. In spite of the loud talking and cheerful demeanor of students, the students are on task. Altogether the group activity lasts about 25 minutes.

At the end of the group activity, the teacher instructs students to return to their desks, which the students do promptly. The teacher returns to the printout, which is being displayed on the screen, and in interaction with students, begins filling in the answers.

Conceptual Versus Rote Learning

The instructional processes of this lesson and the others we observed in elementary schools were similar. Common to all of these lessons was the Japanese teacher's emphasis on teaching the understanding of concepts rather than calculating skills. In other words, arithmetic lessons in the Japanese elementary schools we observed were largely conceptual, involving a steady but relaxed pace of instruction, during which Japanese students were expected to think about mathematical concepts rather than doing many calculations.

Along with the emphasis on the conceptual in the classroom, Japanese teachers expect students to learn and practice calculating skills outside the classroom. Hence, calculators are rarely if ever used in Japanese elementary schools. Some teachers stated that calculators, unlike the *soroban*, do little to deepen understanding of arithmetic and, hence, are of little educative value. This attitude was typical of the ones expressed by other respondents.

Most teachers also believed that learning the *soroban* is highly useful for developing arithmetic skills. The principal of Matsu Elementary School agreed with this thinking, but added that the *soroban* is "not almighty." One parent, herself well-trained in the *soroban*, explained that at least one year of instruction, not the 5 hours as provided in the curriculum, is needed to reap the benefits of the *soroban*.

Perception and the Use of Instructional Resources Outside of School for the Mastery of Curriculum

In spite of its perceived usefulness in developing understanding of mathematical concepts, the popularity of *soroban* has declined in recent years. According to the principal of Matsu Elementary, very few parents at Matsu send their children to *soroban* lessons nowadays, opting instead for lessons in the *Kumon* method. The *Kumon* method provides supplementary instruction in arithmetic as well as in other subjects. *Kumon* lessons are based on a series of drills arranged in subtle gradations of difficulty. Students begin doing drills on material that they have mastered and progress from there.

One mother offered her observation of why the *Kumon* method has been so popular recently among parents at her child's elementary school:

> Well, the *Kumon* method does not force anything upon the learner. Irrespective of grade, the *Kumon* method begins from an easy point that perfectly matches the learner so that he can get 100 percent correct. That is one point. After that, everything is repeated until it becomes second nature just like the *soroban* thing where you can visualize it in your head. Another good thing is that one can learn at one's own pace without learning from a teacher. One can skip above one's grade level, and I think this leads to self-confidence. The negative thing is that there are no application problems and no word problems. Since there are no application problems, by just knowing *Kumon* method arithmetic, one cannot do real arithmetic.

In spite of the popularity of *Kumon* lessons in particular and *juku* in general, the parents we interviewed expressed a reluctance to push their children of elementary school age academically. These parents may be in the majority. A recent study found that only 23.6 percent of elementary school students attend academic *juku* classes for instructional support outside of that provided by their school (Nohara, 1993).

Parental Perception of the Elementary School Curriculum

Most respondents did not perceive the level of math and science, or other subjects, required of elementary school students to be excessively demanding. In fact, one mother characterized the elementary school and the curriculum in the opposite way:

> Elementary school has a lot of free time. For example, in arithmetic and science and such, the point is to make students interested in what is out in the world. For example, my son likes science and he used to make robots; now he makes things with legos. It is important not to push them. Rather, I think that one must give them time to think. Also, they study many subjects in elementary school. I think of this as a foundation for a lifetime. I think the purpose of elementary school education is to provide experience, to show kids what is out in the world, and to let kids develop an interest in things that comes from the spirit. (Mother of fourth-grader, Matsu Elementary)

Testing in Elementary Schools

Because there is no entrance examination for entrance into public junior high schools, elementary school education in Japan is not oriented toward an entrance examination. One elementary school teacher said that if they prepared students for examinations, the purpose of elementary school education would be lost. Public elementary schools provide no extra classes or special instruction for students taking entrance examinations for private junior high schools. Elementary school teachers, however, may give encouragement and advice about home study (*kateigakusbu*) to these students. An elementary school in Kita City has a policy forbidding homework, but teachers expect that children will review the day's lesson and will study the next lesson. Teachers also suggest topics of study to self-motivated students.

Although there is no concern about preparing elementary school students for testing oriented toward examinations, elementary school teachers do frequently test students. The purpose of these tests is to evaluate the students and the effectiveness of instruction. Tests are given by teachers once every 4 to 6 weeks and students are allowed roughly 40 minutes to complete them. Students are not ranked in comparison to other students according to their performance on these tests, but are given grades, typically on a three-point scale (A, B and C). The grades are used by teachers to calculate semester grades for report cards.

We found that standardized intelligence tests (IQ tests) are also administered in Japanese schools. At the elementary school level, for example, teachers reported that students are given group tests of intelligence in the second, fourth and sixth grades. The

purpose of the intelligence tests, according to an elementary school teacher, is to determine the correlation between grades and intelligence tests scores to help determine whether students are performing at their potential. However, this teacher emphatically stated that he did not use these intelligence tests in any other way. Further, the intelligence test scores are never reported to parents, the elementary school teacher said because, "parents of students with high scores might force their children to study at home and parents of students with low scores might become sad."

Setting and Monitoring Standards in Elementary Schools

According to teachers at Matsu Elementary School, many elementary schools are devising their own school standards related to the new *Monbusho* curriculum. One teacher explained the importance of responding positively to children's effort:

> The new *Monbusho* curriculum calls for the positive evaluation (*hyoka*) of students instead of critical evaluation (*hyotei*). The meaning of *hyoka* is that you look for the good part of the child and evaluate that. In order to recognize the good part, it is necessary to figure out what parts to recognize. The idea is that this will lead to students developing more positive attitudes toward learning. In the past, it was such that say, in calculation, you made students do all kinds of calculations, and then you would divide them up on the basis of scores. There was a time when students could only get half of the problems correct on a test of say 40 problems. Now, it is different. With the new thinking, we recognize both students who take 30 minutes and those that take 40 minutes to do a problem. That is the point of the new evaluations standards.

Matsu Elementary School devised its own standards based on the *Monbusho* curriculum, using a three-point grading scale. The standards for the school were created by committees of teachers. There were eight committees, one for each of the subjects in the curriculum. The committees created a text called the standard evaluation report that detailed the levels of attainment required in order to achieve each of the three letter grades: A, B and C. This report was several hundred pages in length.

Differences Between Elementary Schools

Minor differences in achievement between students attending elementary schools in poor areas and those attending schools in affluent areas were acknowledged by Japanese educators and parents. For example, one mother reported that the level of the elementary school her son was attending was higher than that of neighboring elementary schools, a belief she based on "conversations with her friends" and her

own observations of the differences in the types of families of students at the various elementary schools.

Japanese educators spoke freely about the social characteristics of people in the community and how that influences the level of students in the local elementary schools. White collar communities were considered superior by Japanese educators because parents in these communities were perceived as providing more support for schooling. In general, the differences were considered minor by those we spoke with, and there was no indication that Japanese parents in the three regions based decisions about where they would live primarily on the quality of elementary schools.

Junior High School

Junior High School Curriculum

The junior high school curriculum is presented in Table 5. There are eight subjects, including math and science, that are required in all three grades (7-9). Electives comprise about 10 percent of the total school hours. As is the case with the elementary school curriculum, the junior high school curriculum strives to balance academic and non-academic subjects. Music, fine arts, health and physical education are required subjects for all three grades. The most common elective subject is foreign language, usually English, but music and fine arts are also offered as electives chosen with the advice of the teacher.

Mathematics. The level of mathematics becomes increasingly difficult and the pace of the math curriculum accelerates during the junior high school years. Several Japanese students complained during our interviews about the difficulty and pace of junior high school math. Even students who reported little difficulty with arithmetic in elementary school said that they were no longer able to keep up with math in junior high school. "Sometime around the eighth grade," explained one student, "I could no longer understand what was going on in math."

Several Japanese parents also complained about the level of difficulty of junior high school math. Echoing a common theme, a mother of five explained what she perceived was the cause of her daughter's decline in math scores during junior high, a situation she described as the source of her present concerns:

> In elementary school, students learn arithmetic and great differences between students do not appear. However, in junior high school, math is taught more systematically and rigorously. That is when differences between students start to appear.

Table 5—Number of school hours in Japanese junior high schools

Subjects	Grade		
	7	8	9
Japanese language	175	140	140
Social studies	140	140	70–105
Mathematics	105	140	140
Science	105	105	105–140
Music	70	70	35
Fine arts	70	70	35
Health and physical education	105	105	105–140
Industrial arts or homemaking	70	70	70–105
Moral Education	35	35	35
Special Activities	35–70	35	35
Elective Subjects	105–140	105–210	140–280
Total Minimum Required	1,050	1,050	1,050

SOURCE: Adapted from Jichi Sogo Center, 1991.

An education official in Naka City described the problem with math instruction in junior high schools, as one of a lack of sufficient instruction time to cover the curriculum adequately:

> Elementary school students are taking 5 hours of math per week. Seventh- and eighth-graders in junior high school are taking fewer hours so that the classes tend to be too heavy in content. There is too much material to cover. This leads students to dislike math and consider it useless. In my opinion, math hours should be increased in junior high school by 2 or 3 hours per week.

An education official in Naka reiterated the complaint of the math teachers:

> In elementary school, there is time for students to be involved and do hands-on activities, but in the junior high school, we just lecture. That really alienates students and makes them think that math is useless.

Science. Students also indicated having problems keeping up with the science curriculum in junior high school. An otherwise highly motivated high school student said that a bad experience with physics in junior high school caused him to dislike science. "I do not want to talk about it," responded the student when probed for more information.

One teacher spoke of the difficulty of the science curriculum:

> The junior high school science curriculum is quite difficult. Even high school teachers will look at it and say, 'Wow, these kids are doing difficult things in junior high.' I feel that content is such that students are probably memorizing it without understanding it. (10th grade chemistry teacher, Naka Vocational High School)

Several junior high school science teachers also complained that they had trouble covering the entire science curriculum in the allotted instruction time. Echoing a common criticism of science education in Japan, these teachers said that they felt pressured to teach science as a mass of facts to be crammed in rather than a way of learning about the world. One young junior high school teacher who emphasized experiments in the early part of the semester found himself in a tough position. He had to reduce the amount of material that he covered in the textbook. "I want to communicate the joy of doing science," the teacher explained, but by mid-semester, he said he was "panicking" about how to cover everything that had to be covered in the curriculum so that his students would be prepared for the material on the high school entrance examination.

One junior high school science teacher said that the reason many students lost interest in science at the junior high school level is because there was not enough instructional time to cover everything in the curriculum. "Students," he explained, "end up thinking of science as a subject with a lot to memorize and they get turned off." The teacher added that in junior high school the level of the textbooks is too high and there is not enough instruction time to cover the entire curriculum. He further felt that more instructional time is needed for conducting experiments.

Instruction in Junior High School

Despite the reactions of parents and teachers to the difficulty of the curriculum, the pace of instruction in junior high math classrooms we observed was not what one would expect from such criticisms. The classes seemed to proceed at a slow pace. In fact, I observed a couple of students drawing cartoon characters after they finished the assignment early. The pace was unhurried, the students talked and joked with one another, and the class atmosphere was pleasant and cheerful.

This was also true of the junior high school science classes. Students were given explanations by the teacher and were provided plenty of time to conduct experiments. There are students who always finish experiments and schoolwork early. For example, one group of three boys worked methodically and efficiently, finishing the experiment within 10 minutes. These students spent the remainder of the 20 minutes of class doing work for other classes. The teacher ignored these efficient stu-

dents and waited for the slowest students to finish the experiment before his summary and explanation of the experimental results.

Instructional materials. Japanese junior high school textbooks are small soft cover books. Most are no larger and heavier than a short paperback novel. Since the textbooks are the property of the students, students are free to highlight important sections and to make notes in the margins. Junior high school students we interviewed reported using these textbooks for review, particularly as a way to study for high school entrance examinations.

Students are expected to take the textbooks home. Japanese schools require students to take textbooks home every day as lockers for overnight storage are not provided for student use. Instead, schools typically provide small cubicles for daily storage of items such as bookpacks.

An examination of Japanese textbooks shows them to be simple and clear in presentation. Successive units are integrated and lessons commonly refer to earlier material. The new concept of the unit is then introduced in common language. After this brief introduction, there is a word problem, followed by several examples. There is also a small set of four or five problems for students to solve. Units such as this, which we saw in use, could include as many as 26 pages with large print and ample margins. The textbooks themselves are about 100 pages in length and typically there are two volumes per grade.

Textbooks, particularly in math and science, were seen by the teachers we interviewed as only one instructional resource among several. Since the number of problems in Japanese textbooks is small, students also use supplementary practice problem booklets (*mondai ensbu*). These practice booklets parallel the text books and contain additional problems for each lesson. The booklets are made available to students by the school for a small fee. Students use both textbooks and practice problem booklets during class.

The need for more practice problems is greatest during the 9th and 12th grades, the years before the high school and college entrance examinations. This need for practice problems in preparation for examinations is partially filled by these booklets. Many math and science teachers we observed used these practice booklets during instruction.

Some teachers also reported using the practice booklets as a way to enhance instruction for high-achieving students by assigning these students difficult problems to do on their own. Even elementary school teachers reported using this strategy for

dealing with individual differences. Hence, the booklets of practice problems allow teachers to meet the needs of individual students. One math teacher explained that the booklets provide a range of problems, from easy to extremely difficult. This teacher made individual assignments from the booklet, depending on the motivation and ability of the students. Many Japanese teachers reported assigning additional problems to students of above average ability; thus, the problem booklets (*mondai ensbu*) provide the primary means by which Japanese teachers accommodate these students and maintain their motivation to study.

Teachers also regularly use worksheets for in-class instruction. The sheets are commonly designed by the teacher, but may also come from other sources, such as other teachers and teachers' guides. In fact, in most of the classroom observations, printouts were the primary resource for instruction during class. In spite of the apparent high quality of the textbooks and practice problem booklets, few Japanese teachers said they used these as the primary instructional material during class. Instead, most Japanese math and science teachers relied on worksheets that they made for each period. In Japanese, these worksheets are called 'printouts'. The printouts contain the lesson objectives and problems related to each day's lesson. They are used by elementary, junior, and senior high school teachers.

The printouts are typically clear and well-organized. They are made so that students can follow the lecture and do problems in class. Since problems are written out, teachers do not need to waste class time writing out problems on the chalkboard. Textbooks appeared to be a secondary resource or reference for students; during many classroom observations textbooks remained closed on top of students' desks.

The printouts are also used by students for study and review, and in keeping with the practice of not grading everyday work, these printouts are seldom graded by teachers.

Figure 3 presents a translation of a printout for use in an eighth-grade math lesson. The printout, which students used during the 45 minutes of instruction, closely matched the teacher's instructional plan.

Instruction and the slower learner. The issue of dealing with students of different levels of ability was salient to teachers and administrators at the junior high school level.

> There is almost no connection between the junior high schools and elementary schools in Japan. Once kids enter junior high school, it is truly a type of education that I would call cramming. I think it would be nice if they would spend more time in junior high school explaining things. (Principal of Matsu Elementary)

Figure 3—Translation of printout

Math Learning Printout 3 7th grade
Change and Correspondence 3 _____ Group _____ Name

1 Review of direct proportions Example: Area changing with time

Time	1	2	3	4	5
Area	4	8	12	16	20

Time is in x seconds, area is y cm-squared
What is the direct proportion?

2 Looking at the following graphs, which of the following are direct proportions? Think also of the reason for your answer.

(1) x: 1 2 3 4 5 Direct proportion, other
y: 2 4 6 8 10 Reason

(2) x: 1 2 3 4 5 Direct proportion, other
y: 1 3 5 7 9 Reason

(3) x: 1 2 3 4 5 Direct proportion, other
y: 1 2 3 4 5 Reason

(4) x: 1 2 3 4 5 Direct proportion, other
y: 1 4 9 16 25 Reason

(5) x: 1 2 3 4 5 Direct proportion, other
y: 9 8 7 6 5 Reason

3 Determine whether the following x/y relationships are direct proportions.

(1) Y equals double x.
(2) A train that travels 3km per minute goes y kilometers in x minutes.
(3) With 500 yen, you buy x pencils at 70 yen each and the change is y yen.
(4) A ribbon of x centimeters is cut up and divided equally for six people in segments of length y.
(5) If x is divided by y the quotient is 3.
(6) Going to the same place that takes x minutes walking takes 5 minutes less, or y minutes, by bike.

(1)	(2)	(3)
(4)	(5)	(6)
(7)	(8)	(9)

4 For $y=4x$, think about when x is a negative number.

X: -5 -4 -3 -2 -1 0 1 2 3 4 5
y: 4 8 12 16 20

How about when $y=-2x$?

X: -5 -4 -3 -2 -1 0 1 2 3 4 5
y:

Wrap up

SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95.

As is true of elementary schools, tracking and ability grouping are not permitted at the junior high school level, even though many Japanese students begin complaining of difficulty in keeping up in math and science at the junior high school level.

Team teaching is being tried experimentally in math classrooms throughout Japan as a way to help slow learners. Team teaching was first implemented in selected junior high schools in 1994, but the number of team-teaching lessons was minimal. According to one teacher, the team-teaching experiment was introduced as a way to prevent low-achieving students from dropping out or from refusing to attend school (*tokokyohi*). "The purpose of team teaching," explained an elementary school principal, "is to help slow learners during the class period."

Team teaching was observed in an eighth-grade math class at Midori Junior High School. There were about 40 students in the class, a typical number of students for a Japanese classroom. The teacher called students one by one to the front of the classroom to describe in writing the relationship of two sets of numbers. While students were writing on the board, the remaining students worked on related problems. The team teacher was very busy throughout the period circling the class and providing one-on-one instruction to students having trouble.

Many students who finished early quietly twirled colorful pencils decorated with cute characters such as the penguin-like Pingu. Others, mostly the boys, looked down at pencil cases or notebooks with animated "Dragon Ball Z" cartoon characters. As was the case with the junior high school science class, the focus of this math class was on the average learners; fast learners were left alone, waiting for the rest of the class to catch up.

Perception and Use of Instructional Resources Outside of School for Mastery of the Curriculum

One well publicized consequence of the difficulty of the junior high school curriculum and the desire of students to do well is that many students begin to seek help outside the school. Most of the students we interviewed in the eighth grade reported attending *juku*. These students are not exceptional, as national statistics indicate.

In a survey conducted in 1993, 64.2 percent of junior high school students surveyed in Tokyo, Nagoya, and Osaka, where *juku* are most popular, reported attending *juku* (Nohara, 1993). The figures were lower for non-metropolitan areas (20 percent for cities with populations between 8,000 and 30,000), but the data showed a marked increase in *juku* attendance in small cities during the past decade. In villages with populations under 8,000, the proportion attending *juku* doubled from 6 percent to

populations under 8,000, the proportion attending *juku* doubled from 6 percent to 12 percent in the past decade (Nohara, 1993).

Most of the junior high school students interviewed reported that the primary reason for their attending *juku* was to receive help in basic subjects. One student said that he needed the instruction in order to "keep up with his studies in school." Many of the Japanese students we interviewed reported bringing schoolwork to the *juku* for help on a regular basis.

Students did not report pressure from parents to attend *juku*. One eighth-grader said that she started attending *juku* because her older brother had attended and said it was fun. Many reported that *juku* was a good place to make friends. Hence, *juku* have a social function, as well as an academic one. Only one student had anything negative to say about the *juku* experience. He described the *juku* teachers as scary: "They yell at you if you don't do your homework." But even this student thought that attending *juku* was a positive experience overall.

Many parents did express negative or mixed feelings about *juku*. A mother of three high-achieving students gave the following reason for her opposition to *juku*:

> I was opposed to *juku*, so I didn't send my daughter. There is the money, but in addition, I feel that *juku* only teaches children how to solve problems on the examination. Unlike schools, *juku* do not raise human beings. Since they do not raise human beings, I think that it is better to just go to school without going to *juku* even if one's grades are bad. Also, my older children did not go to *juku*, and the feeling of having accomplished what they did on their own is a source of pride for them today.

Most Japanese teachers reported taking a neutral position toward *juku*, neither encouraging or discouraging students from attendance. However, the general attitude toward *juku* displayed by teachers is negative. In fact, most Japanese teachers said that they encourage students to use the resources of the school and self-study to improve academic performance.

One teacher confessed that his sense of pride was challenged by the *juku*. "I'd rather have them study within the framework of the school," said the teacher, "It's just my sense of pride as a teacher."

Testing in Junior High Schools

Japanese students quickly become accustomed to taking major types of tests in junior high. These major tests, given in both the junior and senior high schools, are called periodic major exams (*teikishiken*) These exams are conducted in the same manner in most Japanese senior high schools. They are similar in form and content to the entrance examinations students must take to enter high school and college.

Periodic exams usually include midterm and final examinations for each of the three semesters during the school year. Most Japanese secondary students reported taking at least six major examinations every school year. These examinations are given over a period of 2 or 3 days during regular school hours.

One junior high school student said that the periodic exams give him a "kick in the pants" to study. He confessed, along with two other students at his school, that he probably would not study much if there were not any periodic examinations to motivate him. He added that he gets serious about studying around 1 week before the examinations. These same students, who were very active in school and high achievers, confessed to slacking off between exams. "Like when the exam is over, I just breath a sigh of relief and don't do anything for awhile."

The following conversation with three junior high school students captures the atmosphere from the students' point of view before the major exams.

> Interviewer: Do you feel like studying before the exams?
>
> Student 1: Yes, because everyone else is studying.
>
> Student 2: That's right.
>
> Student 3: You feel that you have to do it.
>
> Interviewer: When do you get this feeling?
>
> Student 1: About four days before the exams.
>
> Student 3: Since everyone else is studying, I feel that I don't want to lose to other students.
>
> Student 2: We tell each other, when it's all over we can play and have fun.

Major examinations are frequent in junior high school, about once a month. One student described how often he studies for these examinations and at *juku*:

> There is a periodic exam about once a month. About 1 week before the periodic exams, I begin studying. I devote about 2 or 3 hours a day after school to study-

ing for the periodic exams. I also go to *juku* once a week for 3 hours. (Eighth-grade student)

The schools we visited coordinate activities around these periodic exams. Teachers explained that club activities are canceled for one week before the five periodic examinations so that students can concentrate on studying. Even junior soccer leagues, which are not affiliated with the schools, cooperate with the schools and cancel practices and games for one week prior to the periodic exam. The schools and the community appear to be sending a strong message to students that studying for the periodic exams is a priority over all other activities.

Since the periodic exams are constructed to help students prepare for the entrance examinations and to measure their mastery of the curriculum, the tests are challenging. Formula sheets are not permitted for the math sections, which leaves students with a lot of material to memorize. All three Marunochi Junior High students talked about the difficulty of the math part of the periodic exams. "There are just tons of problems we have to go through," said one student. "There is no time to look over answers." The students estimate that there are usually 50 math problems on each exam. In contrast to the math section of the exam, the students agreed that the science section is not as difficult. "A lot to memorize," one student explained, "but fairly easy."

Quizzes and short tests were not emphasized by the Japanese teachers with whom we talked. Generally, teachers reported using in-class tests sparingly since students are motivated by the periodic exams. Teachers reported using the in-class tests to monitor the progress of students or the effectiveness of instruction, rather than in determining semester grades.

Several teachers expressed the opinion that excessive use of in-class tests would confuse students about the true purpose of learning. One teacher posited that if he began grading these tests, students would start worrying about scores instead of attempting to master the curriculum. Teachers who give such tests do so to help students check how well they know the material which they are required to know to move to the next level. In these cases, students typically grade their own "small tests," and these are not factored into grades for the course.

According to our interviews with teachers, grades and the students' rank in the class are determined by a combination of the major exams and the small tests. A large degree of autonomy is given to departments to determine the relative weightings of the two components. Generally, exam scores contribute about 60 to 70 percent of the comprehensive grades in math and science, with the remaining 30 to 40 percent being based on classroom behavior and homework assignments.

Since the high school entrance examinations are based entirely on knowledge of the curriculum, junior high schools are under pressure to deliver the curriculum. According to an eighth-grade physics teacher, "There is no direct pressure from *Monbusho* to achieve a certain level. However, most teachers feel pressured to teach the curriculum because almost everyone goes to high school, and the high school entrance examination demands a certain level of knowledge."

Entrance Examinations for High School

Graduation from junior high school marks the end of compulsory education in Japan. Nevertheless, 96 percent of junior high school graduates go on to senior high school (*Monbusho*, 1993). In order to advance to senior high school, graduates of junior high schools must take standardized high school entrance examinations. The examinations may be either prefectural or national, depending on the school system to which the student is applying. Most students take prefectural high school entrance examinations. A small percentage of students take exams that would admit them to schools designated as "national" schools.

In contrast to countries where admission to a high school depends on the area of a city in which a student's family resides, students in Japan have potential access to a larger number of schools as long as entrance requirements are met. Since the Japanese population is highly urbanized and most cities have well developed mass transportation systems, competition for entrance into the higher-ranked high schools in Japan is typically intense, as was the case in the three regions we visited.

Regional differences. Because the high school entrance examinations are devised by officials from the local boards of education, there are minor differences in the content of the examinations, and so actual problems may differ from prefecture to prefecture. However, the important point is that all of the problems for all prefectural examinations must be within the domain of the *Monbusho* curricular guidelines. A prefectural review board determines whether questions deviate from the content of the curriculum or are too difficult. Since the questions on the high school entrance examination are restricted to the *Monbusho* curriculum, companies that publish materials to help students prepare for the examinations advise them that the best way to prepare for the examinations is to review textbooks and do practice problems.

Five basic subjects of the entrance examination. High school entrance examinations must cover five academic subjects that are the core subjects of the *Monbusho* curriculum: Japanese, mathematics, social studies, science, and English. The mathematics section tends to be comprised of mostly open-ended questions, while other subjects, such as science, tend to have multiple-choice answers. Each subject is

tested for 40 minutes and all subjects are weighted equally. Total scores are used by high schools in making admission decisions.

Entrance examinations for private schools, however, have included problems that cover areas outside the *Monbusho* curriculum. The Ministry has actively discouraged this practice, suggesting that it contributes to "educational overheating" and to inequality between students who can and cannot afford *juku*. In recent years, there is evidence that fewer private schools are using problems outside the *Monbusho* curriculum because of the pressure from *Monbusho* (Nohara, 1993).

Exam preparation. Japanese bookstores are filled with inexpensive preparation guides that contain information for test-takers. The guides invariably contain former examinations from the previous 5 or 6 years, complete with answers and explanations. Mock examinations with self-scoring instructions are also included in many preparation guides. The preparation guides analyze the topics covered in past exams, the trends, the types of problems and strategies for test-taking. One booklet even advises students about what to eat the night before and the morning of the test. On the day of the test, a light breakfast of rice, miso soup, pickles, and green tea is recommended.

A preparation guide for the prefecture where our primary research site was located indicated that five areas of the *Monbusho* curriculum in mathematics have been tested in the past 5 years. These areas include (a) numbers and formulas, (b) equations and inequalities, (c) functions, (d) figures, and (e) statistics. Past problems were also classified into subcategories. This delineation revealed that some topics are covered every year while others have never been covered. For example, within the topical area of functions, proportions had not been covered in the past five examinations. Roughly one-third of the topics were not covered by recent examinations.

Fewer topics had been covered every year in the science section than in the math section. Gas, force and pressure, voltage and current, earth and space, and the earth's crust and minerals were topics that had been tested by all five of the most recent examinations. Interviews with students provided evidence that students were aware of these details of coverage on entrance examinations.

The math section of the high school entrance examination for this prefecture consisted of three long and 20 short problems. Short problems are those where the answers to various problems are independent of one another. The long problems require several steps and integration across topical areas. For example, in recent examinations such problems have required synthesis of the topics of figures, functions, and graphs. The preparation guidebook cautions students that the long prob-

lems take time to solve and make "Forty minutes seem like a very short time." Thus, the guidebook warns, "Time management is very important in the math section."

The science portion of the examination has typically consisted of four long problems and a series of short ones. According to the guidebook, the science questions emphasize basic knowledge, but the range of topics that appear in problems has been wide. Therefore, the guidebooks advise students that everything in the curriculum must be studied.

Motivation to perform on the examination. Since high schools are ranked according to their academic status, and since the rankings have clear implications for university entrance chances, a certain proportion of Japanese students are motivated to perform well on the high school entrance examinations. A high school math teacher gave a common explanation for the high level of achievement of Japanese students:

> The academic credential society (*gakurekishakai*) has created the high academic standards in Japan. This is because parents believe that the better school you go to, the better company you can enter, and the more stable a position you can attain. Parents push their children from a young age to do well in school.

Clearly, examinations and tests provide an important source of motivation to study. One teacher had this to say about students' motivation to study in Japan.

> Interviewer: Do students become interested in the material by just hearing that it will be on the high school entrance examination?
>
> High School Math Teacher: Yes, there are many of those kinds of students. The color of their eyes will change just hearing that something will be on the high school entrance examination.

The weighting of the entrance examinations in decisions about admissions also contributes to increasing students' motivation to master the curriculum at school, since admission to high school is based on both the comprehensive score on the high school entrance examination and the junior high school report card.

Differences Between Junior High Schools

Differences between junior high schools were more pronounced and more openly discussed by educators and parents, particularly in Naka City. Many parents in Naka City reported being aware of an unofficial ranking of junior high schools in the area. For example, one mother reported that her daughter was told by a high school teacher that she would do all right at a certain competitive high school, because the junior high school from which she graduated was also a competitive one. Two junior

high schools in Naka City, Chuo and Shimogawa, illustrate the kinds of differences between schools of which Japanese parents and educators were talking.

Chuo Junior High School. Many parents and educators said that Chuo was one of the "best" junior high schools in Naka City. The school is located near some of the most expensive real estate in the city, a region that includes many affluent families. It was not unusual to see an expensive luxury car parked outside the school gates on days when there were parent-teacher conferences. The superior quality of the physical plant was also immediately evident.

The students at Chuo were animated, cheerful, and talkative. One student told me that he read somewhere that the fish in the Japanese diet provided a chemical for the brain that was hypothesized to be an explanation for the higher achievement of Japanese in math. Another eighth-grader said that she read about how Japanese processed language in the left brain and that had implications for math achievement. The validity of these explanations notwithstanding, the remarkable thing about these students was their breadth of knowledge from outside reading: knowledge that went beyond the official school curriculum.

The students at Chuo had clear plans for their futures. They typically expected to enter highly ranked high schools and eventually to obtain well-paying jobs. One student, for example, expected to take over his father's company after majoring in business in college. His goal was to make his father's successful local company into a successful national one.

The principal of Chuo explained some of the benefits of school like Chuo. "There are no great differences in student ability," he said, "Almost all of the students are able to handle the material, and they are motivated." The principal also explained that parents of junior high school students, in contrast to parents of elementary school students, chose their address on the basis of the quality of the junior high school. In fact, some parents submit bogus address changes to city hall in order that their children be within the district housing of Chuo. This practice was hard to control, the principal confessed, since schools did not have the resources to investigate every address registry at city hall.

Shimogawa Junior High School. Separated only 15 minutes by train, Shimogawa Junior High was a world away from Chuo in terms of the social class background of students. Shimogawa is located in a bustling retail area not far from the city's central train station. The school itself is located in part of what is called a *dowa* area, or area where there is a high concentration of the *burakumin* minority. About 10 percent of the students at Shimogawa are of *burakumin* descent.

Teachers at Shimogawa reported that they had trouble keeping students motivated and interested in school. "Only about 50 percent of Shimogawa students," according to one teacher, "are able to keep up with the curriculum." This is in contrast to the nearly one 100 percent estimate given by the principal of Chuo. While Chuo students talked about applying to the highest-ranked public and private high schools in Naka City, Shimogawa's guidance room was filled with pamphlets for vocational high schools and career training centers.

The students at Shimogawa, even though those interviewed were all members of the student council, seemed less confident, less animated, and less well read than the students at Chuo. They were all highly motivated academically, but they were not as articulate or cheerful as the Chuo students. They also reported having difficulty with their courses.

Perceptions of fairness at Chuo and Shimogawa. The higher academic level of Chuo compared to schools like Shimogawa was seen by teachers, parents and students as both negative and positive. On the one hand, Chuo teachers could cover the curriculum more effectively with their students, and therefore prepare them better for the high school entrance examination. On the other hand, since high school entrance is determined by both examination scores and high school grades, Chuo students perceived themselves at a disadvantage because they felt it was much harder to get good grades at Chuo since they were competing with other high-achieving students. Shimogawa educators agreed that Chuo students were at a disadvantage because of the admission policy of high schools.

High School

Senior High School Curriculum

Although education beyond the ninth grade is not compulsory, *Monbusho* develops curricular guidelines for senior high schools. The most common types of public senior high schools are regular or academic (*futsu*) high schools and vocational high schools, such as commercial (*shogyo*) and industrial (*kogyo*) high schools.

Curricular requirements for senior high school students include the completion of four credits of math and four to eight credits of science during their 3 years in high school. The higher requirement for science applies only to science majors at academic high schools.

Table 6—Subjects required of all Japanese high school students

Subjects	Required Number of Credits
Japanese language	4
Geography and history	2 or 4
Civic Education	4
Mathematics	4
Science	4–8
Health	2
Physical education	9
Arts	3 or 4
Homemaking	4

SOURCE: Jichi Sogo Center, 1991.

As table 6 indicates, the *Monbusho* curriculum sets minimum requirements and guidelines for all types of senior high schools. Courses of study beyond these minimum requirements depend on the type of school. Academic high schools include more academic subjects in their course of study and generally enroll students of a higher level of ability than those enrolled in vocational high schools.

Tracking to High Schools

Japanese high schools exist within a hierarchical structure. The status of academic high schools is determined by the number of graduates they send to universities and the level of prestige of the universities to which their graduates are accepted. For example, a large percentage of graduates of the top academic high schools pass admission tests for the top national and private universities, while graduates of high schools of lesser rank generally pass admission tests for lower ranked universities.

Perhaps more than is the case in many other countries, the university a person attends greatly influences future employment opportunities in Japan. It is not surprising that many students strive to gain entrance to the most highly ranked high schools, for graduation from a highly ranked academic high school increases a student's chance of success in passing admission tests to the most difficult universities.

The high school admission test therefore acts as a tracking mechanism, separating students of different levels of academic ability into different high schools. While the academic high schools all offer the same curriculum based on *Monbusho*'s curricular guidelines for senior high schools, the rigor and depth with which the curriculum is covered is adjusted to the academic abilities of the school's students.

Vocational high schools offer an alternate form of school for low-achieving students. Although they rank below academic high schools and offer multiple vocational tracks, they are also subject to *Monbusho*'s curricular guidelines. Vocational and core academic subjects are required components of education at vocational schools, and the various vocational tracks offer curricula that require different levels of academic ability. Attendance at vocational high schools has several distinct disadvantages. Perhaps the most critical is that studying vocational subjects puts vocational high school students at a disadvantage in the university entrance examinations, which cover only academic subjects.

The restriction of opportunities for entering a university contributes to the current lack of popularity of the vocational high schools among Japanese students. National statistics indicate that the proportion of students attending vocational high schools has decreased continuously to somewhat over 20 percent today (Shimizu, Akao, Arai, Ito, Sato, & Yaosaka, 1995). These schools are also associated with manual labor and blue-collar work; they are seen by many Japanese as an unattractive academic pathway.

Implementation of the Curriculum

Monbusho's curriculum guidelines are implemented at the senior high schools in much the same way as in the junior high schools. Teachers of each subject meet for departmental meetings on a regular basis to discuss implementation of the *Monbusho* curriculum and to share information about their progress in the classroom. Observations at Arata High School and Meiji High School captured the dynamics of the departmental meetings. One meeting, which lasted for a full period, brought together all 10 math teachers at Arata. Handouts containing the meeting agenda were given to all participants. Although serious issues were discussed, there was frequent laughter, a relaxed atmosphere, and a sense of congeniality among the math teachers.

The main agenda of the meeting was to coordinate the curriculum between the grade levels and among the same classes in the same grade. Each teacher was asked by the leader to indicate what had been covered to date in his or her class, as well as plans that had been made for the rest of the year. There were some discrepancies between reports from teachers teaching the same classes. For example, one teacher had already completed the coverage of the 12th-grade math textbook, while another teacher of an equivalent 12th-grade class had only begun discussing the last chapter of the same textbook. In spite of these minor variations, there was general uniformity in what different teachers of equivalent classes were teaching.

In contrast to departmental meetings of math teachers, meetings of science teachers at Meiji and Arata High Schools were notably tense because of difficulties the science teachers were having with the *Monbusho* reforms. A source of tension be-

tween the science department and other departments in the schools was the reduction in hours of instruction, since reductions in hours for science had to be divided among chemistry, biology, physics, and earth science courses.

Some of the science teachers at Arata High School expressed concern about being able to cover the entire science curriculum with the reduced instruction time caused by the new policy of eliminating a second Saturday class. A biology teacher said that it would be possible to reduce the number of hours of instruction by 1 hour for students majoring in humanities but not for science majors. The chemistry teacher agreed, adding that it would be impossible to lose 1 hour of instruction for science majors and still prepare them adequately for the college entrance examinations. The physics teacher echoed the concern of the chemistry teacher: "It will be very difficult to prepare students adequately for the entrance examinations."

Science teachers at Meiji High School were even more tense than teachers at Arata High School. The departmental meeting of science teachers at Meiji included the following exchange.

> A question is proposed by the leader: "What are the advantages of moving to 33 credits in science instead of 34 next year since science will eventually have to face a reduction to 33 credits (because of the loss of Saturday classes)?"
>
> A biology teacher in an angry voice asks the leader if he ever thought that 33 credits might be insufficient to cover everything. She added that she had seen this problem right from the beginning when there was a debate about what would happen to science during a previous reduction. "This time," she said, "there is no acknowledgment about what will happen to science and no other teachers in the other departments like Japanese seem to care or have thought about this. At the very least, I would like it to be acknowledged that it will be impossible to cover all materials in the textbooks."

Instruction and Instructional Track Options

The amount of material that teachers are required to cover by *Monbusho*'s curriculum guidelines forces teachers at the high school level to move through lessons quickly. For students in academic high schools, who make up over three-quarters of all high school students in Japan, the pace of instruction is rapid since teachers must cover all the material students will have to master in order to pass the university entrance exams. Generally, teachers and students described the pace of the math curriculum in academic high schools as "very rapid," and many students reported struggling to keep up with the material.

Teachers perceived the science curriculum at the high school level as demanding, and they expressed concern because *Monbusho* reduced the number of hours of instruction by eliminating two Saturday classes a month. "The standard number of hours for chemistry decided by *Monbusho* is unreasonable," explained a high school chemistry teacher. "Even if there were 5 hours, we would have to cram. With 4 hours—now that is really cramming." A biology teacher at Meiji High School added, "Students are being relentlessly pursued by homework now."

Academic high schools. While tracking is prohibited for junior high schools in Japan, *Monbusho* regulations allow for tracking at the high school level. All of the academic high schools in the primary and secondary research sites had implemented some form of tracking. The most common practice at these schools was the separation of students into humanities (*bunkei*) and science (*rikei*) tracks. Although we observed no instance of tracking in the 10th grade, students were tracked during the 11th and 12th grades. This pattern is typical of academic high schools throughout Japan.

Japanese high school educators indicated that placement in a track was largely determined by students, but they also reported that they discouraged students from selecting tracks above their level of achievement. Since the amount of math and science covered in the humanities and science tracks varies considerably, the less able students or those less interested in math and science could elect to major in humanities. One high school principal reported that their humanities students received less than one third of the math instruction of science students. Nevertheless, requirements for math and science were substantial for humanities students, and minimum *Monbusho* requirements still apply.

Arata High School further divided students into public/national university and private university tracks. Therefore, students at Arata could place themselves into one of four tracks, separated by which of the two types of university the student hoped to enter and the track, humanities or science, that the student wished to follow. The curriculum for the two science tracks at Arata was identical except that the instructional level for the public university track was reported to be somewhat higher.

In addition to the tracking of students into humanities and science tracks at the academic high schools, schools also offer different levels of instruction in math within these tracks. In the "easy" math the *Monbusho* curriculum is slowed down and simple textbooks are used. This pace of instruction was characterized by one mother as "slow and gentle." The teacher of this class said that he eliminated certain topics from the curriculum or gave easy problems to students. Most humanities students take what the Japanese consider "easy" math. According to a teacher at Arata High School, four of six of the humanities classes receive an "easy" math curriculum. Stu-

dents in the "easy" math take 2 hours per week of math in the 12th grade, as opposed to 7 hours for the top science track. Nevertheless, it is noteworthy that even these humanities students reported studying calculus.

At the other end of the ability spectrum, Arata High School took the top 50 percent of math achievers in the two highest classes of science majors and constituted a third "accelerated" math course. The purpose of this course was to give the top students a math curriculum rigorous enough to make them competitive in the entrance examinations. The course moved quickly and teachers reported that about half of the students were unable to keep up with the pace of instruction. This special accelerated course began in the eleventh and continued through the 12th grade.

Meiji high school also provided accelerated instruction in math to students in the science track. These students completed the entire math curriculum in 2 years. The last year of high school is spent reviewing problems and practicing for the university entrance examinations. This was a common practice at those high schools where large proportions of students are aiming for admission to prestigious universities.

A higher proportion of females than males selected the humanities tracks in the high schools we visited. Consistent with tabulations conducted by the school, one teacher estimated that at his high school, only one-third of the science students, but two-thirds of the humanities students were female, even though enrollment in the school is roughly equal in terms of proportions of males and females.

Most of the respondents believed that the unequal gender representation was a product of self-selection, based on students' perceptions of gender differences in ability and interest. The argument was that girls are not as interested in or as good at science and math as males:

> There is little difference between boys and girls on the tests in math in the seventh and eighth grade. However, as soon as you hit the ninth grade, all of the sudden boys start leaping ahead. They have a purpose and start studying. I see boys and when the time comes they can really study, but girls, looking at my daughter for instance, they are distracted by many things. You can't do math by feeling. That is where I even felt that the structure of my brain is different. When I talk with my son, he'll say, "Mom, the content of your talking is just talking. There is no structure to it." I think that this is a big part of the reason for the differences between boys and girls. I think that because girls don't have that kind of brain, they cannot do math. I wasn't able to do it, and my daughter is not able to do it. (Mother of female high school student)

According to one teacher, the gender differences in academic tracks are not considered a problem by most Japanese, since the humanities track is seen as providing ample opportunities for admission to college. One female high school biology teacher, however, suggested that gender discrimination in Japan discouraged girls from seeking careers in science. "Male teachers," she explained, "contribute by subtly telling girls that they are not good at science or math."

Although the humanities track has equal utility in terms of college entrance, most respondents said that they felt that the science track is more demanding. Indeed, while students from science tracks could switch to humanities tracks, the reverse is considered to be very difficult and rarely occurs.

The author of a survey on tracking in Japan reported that the practice of tracking in Japanese high schools was seen as a way to deal with intramural differences in ability (Mimizuka, 1986). Two additional reasons were given by Japanese educators with whom we spoke. Tracking was seen as a way for Japanese high schools to accommodate the different interests of students. In addition, tracking was seen as a way to help students specialize for the university entrance examination. The latter reason was based on the perception that entrance examinations had become so difficult that even the best students could no longer perform well on all subjects. Further, high achievement in math was no longer seen as necessary for entrance into humanities departments in college.

Vocational high schools. Various majors offered at vocational high schools attract students of different levels of ability because of their different curricular requirements. Teachers at Naka Vocational, for example, indicated that the information technology major tends to attract the highest-achieving students and the chemistry major the lowest. However, vocational high schools generally select students whose scores would not be high enough to enter academic high schools.

In spite of the low academic standing of vocational high schools, the level of math taught in some of the vocational high school tracks is high. As one teacher in a vocational school explained, industrial technology courses include "tons of differential and integral calculus". The focus of the instruction of calculus at a vocational high school, however, is on application rather than on theory. In the words of the principal of Naka Vocational High School, "You don't have to know how a car runs in order to drive it."

At the other end of the spectrum are students who are enrolled in one of the less academically demanding tracks such as the night program. Teachers noted that many of these students are often in need of remedial work in arithmetic.

The following classroom observation shows the challenge of being a teacher when the curriculum is difficult for students, as is the case for some vocational high school students. The observation is from a 12th-grade math class at the vocational high school in Naka City. The teacher was explaining integration to students who were not paying much attention.

> The teacher explains to the students how integrating x-squared from 0 to 3 gives you the area under the curve. After working through the problem on the chalkboard, the teacher imposes a triangle on the area and points out how the triangle should be slightly larger in area than the area under the curve as determined through integration. He refers to the formula for calculating the area under the triangle. He then goes on to another area under the curve problem, writing the equation y=4x-x on the chalkboard.
>
> Because the teacher's back is turned, a number of the students are talking amongst themselves at this point. The teacher turns to one of these students, "Hey, Y-kun, what kind of graph does this make?"
>
> The student answers, "Don't know."
>
> "It's an 'I don't know graph?'"
>
> The students continue talking.
>
> The teacher says, "Hey, you, what are you talking about? Are you listening? You! Is this a tough problem?"
>
> The student meekly says, "yeah."
>
> "One minus four is a tough problem?" retorts the teacher. "You just agreed with me that it was. Let's get a calculator out and figure this out."

Students who do perform well in one of the more demanding vocational tracks may seek entrance to a university. In fact, one student in the information technology major indicated that he was aiming for admission to a local university. He estimated that he studied 6 days a week from four in the afternoon to slightly past midnight, including a dinner break. He attended *juku* during the summer and winter vacations to help him prepare for the examinations. A self-admitted bookworm, or *gariben*, this student did not fit the Japanese stereotype of the vocational high school student. When describing students in both vocational and academic high schools, it is important to acknowledge that a variety of types of students with differing levels of interest in math and science exist in both types of schools. Furthermore, since high school grades are considered by employers when making decisions to hire vocational high school graduates, students at these schools also have an incentive to perform well in school.

Instructional materials. The textbooks used in high schools, like most of the elementary and junior high schools, are thin paperbacks. The content, however, is quite

different. Because of pressure from parents and students to do well on the entrance examinations, difficult textbooks tend to be selected, as the following comments of a Naka City education official indicate:

> Consideration of university entrance examinations is a factor in selecting textbooks. The selection process considers the level of university students are planning to attend and whether the students are college bound. However, in Japanese society there is a tendency to select difficult textbooks. Teachers and students seek a higher level. It is believed that everyone should go to college if possible. If the selection of textbooks is reduced to two alternatives, I believe the difficult one will be chosen. They are just being greedy. Teachers want to teach students so that they attain a higher level.

In fact, teachers generally use the textbooks as reference books and supplement instruction in the classroom with other materials such as supplementary practice problem booklets and worksheets. As in the junior high schools, teachers in senior high schools use the supplementary practice problem booklets to provide additional exposure to the material students must learn. In addition, because the difficulty of the problems within the booklets varies, teachers can customize assignments for students of different levels of ability. These booklets provide opportunities for students by reviewing practice problems outside of class to prepare for the college entrance examination.

For in-class instruction, teachers relied less on textbooks and practice booklets than on worksheets developed by teachers and shared among teachers. As a result, model printouts are used in many classrooms within the same school, as well as among schools within the same district.

As in the junior high schools we observed, teachers at the senior high schools used these printouts to lead students through math and science lessons. The printouts contain the objectives of the day's lesson as well as problems related to the lesson. They allow the student to follow the teacher's lecture and work through problems in class. Although students use them to follow the lesson in class, they are also used for study and review. In keeping with the Japanese pattern of not grading daily work, these printouts are seldom assigned grades.

Instruction and the slower learner: Just as academic high schools provide accelerated instruction to capable students, Japanese high schools also end up matching instruction to students in the lower ability ranges. The following comment explains the pressures Japanese high schools are under to accommodate the needs of the slow learner:

> Even the bottom students in the top math class end up with better grades than the students in the bottom classes. If anything, the problem is with the students who cannot keep up in the bottom classes. These students would end up giving up. That is why we teach to the top half of the students in the top math class and to the bottom half of the students in the bottom classes. (Math teacher, Arata High School)

Most of the teachers we interviewed indicated that the goal of instruction is exposure, not mastery. Although most Japanese high school students are exposed to calculus, Japanese teachers indicated that they did not expect all their students to understand calculus. When asked, "What percentage of students, in your experience, are able to do calculus problems and understand calculus?" one teacher said:

> About 20 percent of students are able to both do and understand. Almost all students are able to do calculus, although they may not understand it. I am referring to science students here. As for the humanities students, all those that have taken math are able to do calculus, whether or not they understand it. But very few students understand the concept of change in calculus. That is why I think that there is an element of the horse learning to pull out the card when hearing two thumps. I do not think that this is a good way to teach math. I dislike this immensely. But I forget that and teach.

Retention (*genkyutomeoki*) is rarely practiced in Japanese schools, particularly during the compulsory years, or even during senior high school. In fact, one senior high school teacher could not recall a time in his entire teaching career when a student was retained. Other senior high school teachers reported "one case every 4 or 5 years."

Instead of retaining students, Japanese teachers are encouraged by administrators to provide extra instruction in basic skills (*fushinsya shido*) to students having trouble meeting minimum school standards. This may involve the teachers spending time with students outside of class or providing remedial homework assignments during the summer or winter vacations. In spite of these efforts, some students still perform poorly on examinations. In these cases, Japanese teachers reported practicing what they call "letting the student put on a pair of *geta* (Japanese elevated wooden clogs)". This expression refers to giving students extra points for good effort.

The observations suggest that the attitude of the Japanese teachers we interviewed toward the lowest-achieving students is one of providing support for improvement rather than attempting to motivate students through fear of failure. This attitude comes out in teachers' comments about these students. In a soft tone of voice, one teacher acted out how he would instruct a low-achieving student. "For you, let's say you try the best you can to get this kind of score. Make it a goal. All right. Good. That's it."

Even at the lowest-achieving vocational high school in our sample, retention was rare. Naka Vocational high school has a rule that students must score above 30 percent in order to advance to the next grade. The principal estimated that only about one percent of Naka Vocational students fail to reach this level. Most of these students drop out. Ultimately, however, if the student shows a positive attitude, the school "takes care of the student" (*mendo uo miru*), meaning that the school allows the student to graduate even when the student fails to achieve minimum standards. One teacher explained the position by saying that high school has become pseudo-compulsory. "Everyone feels," the teacher said, "that he must graduate from high school."

Instructional Resources Outside of School

Again, the major instructional resource outside of school for high school students are the privately owned *juku*, but the proportion attending at this level is lower than at the junior high school or elementary school level. National statistics indicate that about 10 percent of high school students in Japan attend *juku* (NHK Seron Chosabu, 1992). However, an increasing number of high school graduates also study at full-time private examination preparation schools (*yobiko*) after failing to qualify for entrance to their universities of choice. Among successful applicants to Tokyo University, the highest-ranked university in Japan, 39 percent were students who had studied at *yobiko* schools, and 82 percent of successful applicants to the Social Sciences Department at the elite private school, Waseda University, were such students (Sundai Yobiko, 1994).

Parents and teachers at the high school level were typically critical of students using resources outside of school such as the *juku* or *yobiko*, and most expressed reluctant resignation about the role these institutions have come to play in Japanese society. On the other hand, students expressed more positive feelings about the usefulness of *juku* and *yobiko*.

Testing in Senior High Schools

As noted earlier, grades and class rankings in Japanese schools are determined by a combination of the major exams and the small tests administered in class. The major periodic exams are also the driving force behind students' coverage of the curriculum and preparation for college entrance exams. As in the junior high schools, periodic examinations usually include midterm and final examinations for each of the three semesters during the school year. Students at Meiji High School, for example, reported taking five periodic examinations and three proficiency tests every year. The proficiency tests are scheduled at the end of long vacations and include both new and old material. This means that students must study new material and review

old material over the long vacations, although the students confessed to not studying much for these tests.

Teachers reported giving students "small tests" (*shotesuto*) for the purpose of monitoring students' level of mastery of concepts. For example, the practice of the math department at Arata High School is to give one or two small tests between the major exams. The purpose of the tests is to make students "memorize problem-solving techniques and to measure mastery of material that will not be covered on the major exams." At Arata, these small tests are included as part of the students' grades: the major exams account for 80 percent of the grade and the small tests make up the remainder. Other departments at Arata High have adopted different weightings for major exams and small tests.

Orientation tests covering the junior high curriculum are administered to all newly admitted 10th-grade students as they begin high school in the three prefectures. The school uses the test results to rank the incoming students and these rankings are used by the school to advise the students about areas in the curriculum where they are weak. The tests are devised by the regional boards of education for the entire district and the results are used within the district to compare schools.

Certification Examinations

The majority of Japanese high school graduates do not anticipate enrolling in a college or university (Shimizu et al., 1995), and therefore do not take a university entrance exam. There are, however, national level examinations for non-college bound students. Certification tests are available in a number of vocational subjects, and are recognized by employers throughout Japan. These tests are particularly useful for students from vocational high schools or low-ranked academic high schools. The certification examinations test mastery of the *Monbusho* curriculum for vocational subjects and, in many cases, are quite difficult (Dore & Sako, 1989).

One electricity major at a vocational high school said that he took the electrical technician certification test because it would be "one more thing to sell myself with." He failed the test, but, determined to get some sort of certification, he took another test which was outside his major in the area of hazardous waste handling, which he passed.

University Entrance Examinations (The Center Examination)

Japanese high school graduates seeking to attend university are normally required to take the Center Examination, an examination similar in format to the high school entrance examination. The Center Examination, which is made up of multiple choice questions, has been likened to the SAT in the United States. However, Japanese universities generally admit students entirely on the basis of the Center Examination and pay no attention to high school grades and letters of recommendation.

The Center Examination is administered twice every year, at the end of February and in early March. Students take the Center Examination at the university they wish to attend. Similar to the high school entrance examinations, the Center Examination covers the five core academic subjects. However, students have more electives at this level. Instead of English, students may elect an exam in either French or German. For social studies, students may select one of the following: moral education/politics/economics, Japanese history, world history, geography, or contemporary society.

Publication of preparation guidebooks for the Center Examination constitutes a large private industry in Japan. Whole sections of large bookstores are reserved for these guidebooks, which typically cost no more than $10. Although the Center Examination is a single national examination, preparation guidebooks are written for all the universities requiring entrance examinations, because requirements vary by school and department.

Testing in science. In the Center Examination, the subject of science is divided into three sections. In the first section, either physics or earth sciences may be selected. In the second section, students must choose between chemistry or the other sciences. All students are tested on biology in the third section.

Each university and department decides which subjects will be emphasized in making admission decisions. Consequently, some students reported basing their college entrance choices on considerations of what subjects are emphasized in the examinations.

Testing in math. Testing of math in the Center Examination is divided into two parts, Math I and Math II, each 60 minutes long and worth 100 points. Each part is further subdivided into three sections. Students must complete all three sections in Math I and select two of three sections in Math II. Each of these sections comprises a number of small problems.

Math and English are considered by students to be the two most important subjects on the university entrance examinations. Consequently, students are motivated to put forth great effort to master these subjects. For this reason, English and math courses are the most popular courses in *juku*.

Monbusho curriculum as a foundation for college entrance. The Center Examination is restricted to the content of the *Monbusho* curriculum. The University Entrance Examination Center (*Daigaku Nyushi Sentaa*), which designs the Center Examination, reviews the examination for conformity to the *Monbusho* curriculum and eliminates any problems based on topics that are not covered in the *Monbusho* curriculum.

Japanese students have tended to improve their collective scores on the entrance examinations each year. Therefore, scores begin to cluster nearer and nearer the top with each passing year and it becomes more difficult to discriminate among applicants. In order to distinguish among applicants, the Center Examination has had to create increasingly difficult questions. These questions are still based on the *Monbusho* curriculum, but involve, in the words of a test preparation manual, "the synthesis of several topics." This trend is particularly evident in the math section of the test. However, since the examinations only cover the curriculum, the advice found in guides for preparing for the university entrance examination is similar to that in high school entrance examination guides; namely, review high school textbooks and do many practice problems.

Private colleges are exempt from using the Center Examination. In the past, many private colleges have used their own examinations, which in the case of highly prestigious private colleges were even more difficult than the Center Examination. Increasingly, however, private universities are also turning to the Center Examination to aid in the determination of admission decisions by establishing cut off points that are used to determine whether the potential applicant is qualified to take the college's entrance examination.

The negative impact of the entrance examinations. While entrance examinations were seen by Japanese teachers as having a positive impact on student motivation to study, many also felt that these examinations also have a negative impact on the quality of education in Japan. The pressures of the entrance examinations are seen as contributing to a variety of school-related problems, including an over-dependence on *juku* by students, bullying (*ijime*), school refusal syndrome (*tokokyohi*) and a host of other problems. For example, some Japanese argue that teachers are so busy preparing students for entrance examinations that they do not have the time to intervene in cases of bullying. Also, some have argued that, since Japanese schools are so oriented towards examinations, students become alienated and refuse to attend

school. Many of these relationships presumed to be causal by Japanese are not apparent to the outside observer.

One problem frequently mentioned by science teachers was the pressure to cover the entire curriculum so that students are adequately prepared for entrance examinations. According to a high school chemistry teacher:

> The reality is that the number of things that we have to teach is the same or growing and the time allotted to teach is shrinking. Just trying to follow the textbook takes all of our energy. If we don't teach everything in the textbook, then the students who are taking science in the entrance examination will end up being in a pitiful situation.

According to the teachers we interviewed, experiments must be conducted in the classroom if student interest is to be stimulated in science. However, since experiments take time and are not emphasized on the entrance examinations, there is pressure on teachers to have students memorize the expected results of experiments without actually conducting them.

A high school chemistry teacher described this pattern: "The textbooks are composed of both material for class instruction and experiments, but the experiments end up getting cut. I do not think that is how science should be taught." The teacher pointed out the rooms reserved for science experiments. "We rarely use these rooms," the teacher said, showing the empty rooms one by one. "Seeing is believing," he continued, trying to eliminate any doubt about the veracity of his complaint. He explained that the physics, chemistry, and biology rooms are used only six or seven times a year for experiments. He then pointed out, "This is the earth science experiment room, but we rarely use this room for experiments or any other activity." "It is just a room, with no function." The room looked as though it had not been used in years.

The failure to cover the experiments outlined in the curriculum for junior high and high school was also perceived as creating problems for science education in college. At a symposium in Naka City, which brought together high school and college educators to discuss high school and college linkages, several science professors complained that they were forced to spend an inordinate amount of time doing experiments in college that should have been covered in high school. The result, they feared, was a second-rate science education at the university level in Japan.

A high school science teacher analyzed the state of science education in Japan in the following manner:

> Japanese education is such that students only need to know the correct answers; they do not need to know why. Take a chemistry experiment in which the mix-

ture turns red. If the mixture does not turn red, students do not need to think about why it did not turn red. All that they need to know for the examinations is that it did not turn red. That is why I think that Japanese education cannot produce creative thinkers or those that can program computers. I don't think Japanese science education is that good.

One high school science teacher expressed concern along the same line when he spoke of teachers' education in Japan. "How can elementary school teachers who take very little science in college," he asked, "conduct experiments effectively when they are not doing experiments in high school?"

The pressures of the entrance examinations were also perceived by many educators as detrimental to math education in Japan. In the case of math, there is pressure to provide more time for practice problems for students by increasing the pace of instruction. At some high schools, this involves finishing a 3-year math curriculum in 2 or 2 1/2 years, with the remainder of the students' time in high school being devoted to practice problems and review in preparation for the college entrance exam.

Some math teachers expressed the opinion that the emphasis on problem solving for the entrance examination takes away from the understanding of mathematical concepts:

> I feel like I am just teaching students at this high school repetitive problem-solving techniques. It makes me sad. Even the adult students at the correspondence school that I used to teach at, who didn't have the opportunity to finish high school, seemed more interested in and better able to understand the underlying math concepts. (High school math teacher)

In other words, according to these high school teachers, the college entrance examination adds to the problems of the already demanding math curriculum by creating a need to cover the entire curriculum, even though they fear students may not understand what has been covered. These teachers claimed that a result of this pressure is that many Japanese students find it difficult to keep up with the curriculum and end up losing interest in math. It is not clear whether such a decline in interest among Japanese students is actually occurring; however, the perception existed among many whom we interviewed that it was.

The entrance examinations may also create problems for students who enter college. The symposium of high school and college educators in Naka city addressed this issue. One complaint from college professors was that high school teachers promise students that they will not have to work hard in college. They accuse high school teachers of using this promise to convince reluctant students to cram for examinations.

Another problem addressed by college professors at the symposium was the common practice of high schools not teaching certain subjects, even though they are part of the *Monbusho* curriculum. For example, since probability and statistics are not covered on the university entrance examination, students spend time reserved for probability and statistics reviewing other topics. A group of students at Arata High said that they bought the textbooks for probability and statistics but never opened them. The teacher never covered these topics because they would not be on the Center Examination, but the books had to be purchased in order to demonstrate compliance with the *Monbusho* curricular guidelines.

Differences Between High Schools

As noted earlier, the differences between the level of academics of high schools is openly acknowledged in Japan and is part of the structure of high school education in Japan. In large part, the inequalities are tolerated because high schools are not compulsory.

Even minor differences in the ranks between high schools may have a major impact on students' life chances. However, while recognizing the inequalities, most of the respondents felt that the different academic levels are unavoidable and are fair at that stage of life, even though similar distinctions would be considered unfair during elementary school. Even the practice of tracking students into academic and vocational high schools, although considered undesirable by many Japanese parents, was not considered unfair by most. However, most parents that we interviewed believed that college should remain an option for vocational high school graduates.

Although nearly all graduates of Arata and Meiji high schools go to college, there are important differences between these two academic high schools. The following descriptions point out some of the differences which can be found among Japanese academic high schools of different academic ranks.

Founded just over 10 years ago, Arata High School is the newest prefectural high school in Naka City. Apparently, it is the only high school in Naka City with central air conditioning. Several students indicated that this modern luxury influenced their decision to attend Arata High. The school is large and new and would be attractive to students who were looking for something other than the drab exteriors of the typical Japanese high school. Other reasons given by the students for selecting Arata included its location and its newness.

Arata High is a school just below the median academic ranking of public high schools in Naka City. Although over 95 percent of Arata students are seeking en-

trance to some form of higher education, few Arata graduates gain admittance to elite universities. School officials reported that in 1994 no Arata students were admitted to the national Naka City University, and in 1993 only two students were admitted. Most Arata students enter regional 4-year colleges and junior colleges, and few Arata graduates enter universities in Tokyo that would require their families to provide room and board in this expensive city. According to school records, once every several years an Arata graduate might successfully gain admission to an elite private university such as Waseda or Sophia.

Most students who enter Arata had average records in junior high school. In contrast, according to officials, Meiji High is slightly above the average in academic ranking. The differences in academic achievement among students from the two schools correspond to what appeared to be a large gap in the social class background of their families.

According to our investigation, about 10 percent of Arata High School students receive assistance with their tuition from the government, while almost no Meiji students receive such aid (since high schools are not compulsory in Japan, families must pay tuition to attend high school). Unlike Meiji mothers who reported no difficulty in providing money for *juku*, conversations with three of the Arata mothers revealed that they were not able to afford *juku* without financial sacrifice. These parents resented the fact that students who had parents who could afford the costs of *juku* were at an advantage in the entrance examinations for college.

The mothers of Arata students, and the students as well, did not seem as intensely interested in education as those at Meiji. One mother talked of how she wanted her child to enjoy high school and not just study. She said, "I believe that studying isn't everything." This was a sentiment expressed by other Arata mothers. However, in spite of the balanced attitude toward studying and academic competition that all three Arata mothers conveyed, these parents also expressed regret over not having pushed their children harder and over not forcing them to go to *juku*. The principal of Arata characterized the parents of his students as those "who want to send their children to college but only if they have the ability." He implied that Arata parents are not ones who would push their children to excel at all costs.

Grade-Skipping

Low-achieving students are not retained, nor are high-achieving students allowed to skip grades in Japanese schools. Grade-skipping, or *tobikyu*, is specifically prohibited by *Monbusho* policy. There may be a variety of reasons for this. One mother explained that grade-skipping would be difficult in Japan because "superior students are not strong in all areas and grades are determined by performance in all subjects."

Nevertheless, there are those who, perceiving a weakness in gifted education in Japan, have argued for grade-skipping. Several Japanese teachers expressed interest in the practice of grade-skipping in the United States during our interviews. Regarding gifted education, one educational official in the city of Naka expressed a widely held sentiment:

> The standard is the same for all of Japan. The only problem is that we cannot offer gifted programs as the United States does. This is a great concern. It is difficult for Japan to produce a Nobel Prize winner or scholars who are of the caliber to win Field Medals.

Although many Japanese express this opinion, they also suggested that grade-skipping does not reflect values that emphasize the group. Further, grade-skipping is also perceived as a form of elitism.

Standards Based on Content

The absence of retention and grade-skipping in Japanese schools, coupled with the demanding nature of the math and science curriculum at the secondary school level, creates contradictory pressures on Japanese teachers to teach to the level of the average or slow learners in a class while attempting to raise the performance of all students.

Ultimately, Japanese teachers adapt to the level of students, as the following statement by a teacher indicates, "I think that every school adjusts what it teaches according to the level of the school. There are schools that do a whole lot of the curriculum and there are schools that only do the simple problems."

This comment reveals the fact that in spite of the high level attained by many Japanese students, mastery of the *Monbusho* curriculum is not required of all students in Japan. In fact, a common saying among educators in Japan regarding the *Monbusho* curriculum is "seven, five, three", meaning that 70 percent of elementary school, 50 percent of the junior high and 30 percent of the high school students can be expected to actually master the curriculum. Although many teachers and education authorities consider this an excessively extreme description, our conversations with teachers indicate that not all students are expected to master the curriculum. As noted earlier, almost all students are allowed to progress through grades and graduate with their age cohort, at either an academic or vocational high school.

In other words, in actual practice the *Monbusho* curriculum is one that provides standards in terms of content in contrast to one that requires a particular level of performance from all students. One teacher explained this approach: "The object of the curriculum is to give everyone exposure to the curriculum, not to demand that they have to achieve up to a certain level." This teacher's comment was typical of descriptions we encountered regarding the curriculum.

Another teacher's comments were even more unambiguous about the intent of the *Monbusho* curriculum. When asked, "Is the *Monbusho* curriculum thought of as a minimal level of mastery expected of all students? Are all the students expected to master the material in textbooks at the elementary school level?," he responded:

> Not at all! We teachers do not think that. I wonder what *Monbusho* is thinking. Hmmm. If *Monbusho* is thinking that, say, 34 out of 34 students in a class have to master the whole textbook, then that scares the hell out of me. They are only saying that it is desirable, so I make efforts in that direction. I try to find the good qualities of each child—for example, this kid is good at understanding diagrams and that kid is good at calculations. It is not possible to teach so that all kids master the curriculum 100 percent.

Standardization of education throughout the country was another reason cited by an education official for the existence of a national curriculum based on content. "Japan is a small country and when someone moves out of a prefecture or city, he or she does not need to worry about going to a different prefecture or city and having to fulfill a different set of standards." Thus, because all students are exposed to the same materials, equity is presumed. On the other hand, level of performance begins to be a critical problem when students must cope with the college entrance examinations.

Societal Responses to Student Competition in the Education System

The size of the private supplementary education industry in Japan has been cited as an example of "educational overheating." National data indicated an increasing rate of *juku* attendance at all levels and a diffusion of *juku* to non-metropolitan areas (Nohara, 1993). The reliance on the private sector to provide supplementary education is a consequence of the intensity of competition to pass entrance exams.

Testing Industry

The importance of test scores in gaining entrance to good schools and access to good jobs has led to the growth of a large testing industry in Japan. Until the early 1990's, large private companies (*gyosha*) conducted mock examinations of all public junior high school students. With these data, the large companies were able to give students a precise estimate of their *hensachi*, an adjusted score from which a percentile ranking for each student could be determined. Since almost all graduating junior high school students took the tests, the large companies were able to advise students about appropriate high schools to which they should seek admission. As a result, the student's junior high school is circumvented as a source of guidance about high school entrance. Fearing that students were relying too much on these companies and the *hensachi* score and too little on the junior high schools, *Monbusho* forbade the practice of *gyosha* tests several years ago.

In spite of *Monbusho's* action restricting the *gyosha* tests, Japanese students continue to seek outside help in making decisions about applying to high schools. Many students still turn to *juku* for help in deciding what level of high school to submit an application. Large national *juku* chains conduct mock examinations that are similar to the *gyosha* tests. Since these examinations are taken by large numbers of students, the major *juku* chains are able to give students a good estimate of their *hensachi* score. Knowing the score, a student is able to estimate the likelihood of gaining acceptance to certain local high schools, although this has become more difficult because not all students take the tests.

Because of the value of the *hensachi* data, Japanese parents in the main research site pressured schools to come up with an alternative to the *gyosha* test. As a result, in Naka City, the remnants of the two largest testing companies were reconstituted into a new company. This company offers a test similar to the one that *Monbusho* prohibited. However, the company circumvents *Monbusho* restrictions by conducting the test outside of the junior high schools at large private universities or in auditoriums. Because of the valuable information such testing provides, one teacher estimated that over 85 percent of junior high school students take this reconstituted *gyosha* test. Information about this test is used by teachers in their recommendations for high school applications.

Alienation from Math and Science (Risubanare)

The difficulties presented by the entrance examinations and the math and science curriculum were cited by a number of teachers as factors in what they perceived to be an alarming movement among young people away from math and science. At universities, there has been a notable drop in students majoring in engineering and in

science. At the high school level, the trend for students to take less math and science was apparent to many parents and educators (Monbusho, 1993).

"At one time only about 5 or 10 years ago," explained a teacher, "there was a 50/50 ratio of science to humanities majors. Now the ratio is 70/30 in favor of humanities majors." At Meiji High School, the number of science majors dropped from 7 classes of 40 students to 3 within the past decade.

Japanese parents, teachers, and students informed us that a sudden drop in interest in math and science occurs around the eighth grade, but often as early as elementary school. These phenomena were referred to in Japanese as *risubanare*, or alienation from math and science. For some students, alienation from math and science is simply a matter of being more interested in other subjects, such as history or language. As one mother explained, "It's more interesting to travel the world and learn about history and culture than it is to sit in a lab and do experiments."

There may be economic reasons, as well, for *risubanare*. According to an education official at Naka City, "Humanities majors get better pay, and it seems that many managers and presidents of companies were humanities majors." In fact, the improving salary picture for humanities graduates in the 1980s has been cited as a major factor in the *risubanare* phenomenon by government analysts in Japan.

Although many students we interviewed reported disliking some science subjects, few students reported disliking all science subjects, and some of the problems with certain science subjects were related to experiences with poor teachers. Furthermore, math was one of the best-liked subjects among the Japanese students we interviewed. One junior high school girl described math as being "like a game or puzzle." Similarly, a high-achieving high school student, who in manner was quite unconventional (his hair was dyed orange and he was working part-time without the required permission from the school) stated, "I like math because there is only one correct answer."

Some teachers felt that the problem of *risubanare* was overstated by the mass media, which flooded Japan with stories about *risubanare* after a government study reported a drop in interest in science and engineering among young Japanese. Our conversations with students suggest that the problem may not be as grave as feared.

However, even those with a more optimistic viewpoint conceded that dislike of math and science among students is a problem. In the words of a junior high school principal:

> There are lots of students who do not like math or science. I think part of the problem is that there is such a gap between the junior high school and senior high school curriculum. Also, there are not enough opportunities for junior and senior high school math teachers to coordinate instruction. Also, there is not enough time for drills. There is a time when students need to be forced to do drills. If at that time you don't force students to do drills and only emphasize thinking and conceptualization, they end up falling behind. Strength in math, like English, comes from drills. Comparing textbooks of today to those 10 years ago, I sense that there is less substance to the textbooks today.

Further, the concern is that students who do not like math or science become teachers who do not like math or science, thereby perpetuating a vicious circle. As one math teacher said:

> If the teachers dislike math, it is very difficult to communicate good uses of math. We emphasize the importance of this point often in the training of new teachers. If a teacher does not have enthusiasm for math, he or she cannot be an effective teacher. 'Heart' and 'spirit' are important in teaching.

Equity and National Standards

Although national standards in Japan help ensure that all students in compulsory education have similar opportunities to learn, they cannot guarantee equality of outcome. Indeed, many Japanese parents and educators perceived significant differences in outcomes between schools as early as elementary school, and the differences became more pronounced at the junior and senior high school levels.

The Impact of Social Class

The contrasts between Chuo and Shimogawa Junior High and between Arata and Meiji Senior High Schools illustrate the importance of social class in Japanese society. Japanese parents and teachers overwhelmingly perceived important social class differences in ability to provide home support for academic achievement, and cited social class as a major factor in Japanese students' academic achievement. This perception is illustrated in the comments of a Japanese principal when asked if he perceived a relationship between parental socioeconomic status and academic achievement:

> This is a difficult question. Hmmm. It depends on what sort of ability you are talking about. But if it is the ability to take entrance examinations, then I think that there is a relationship. Some parents send their children to *juku*. They hire home tutors and force the children to study. Families without economic power

cannot do this. Also, I think this is important. Let's say the Boston Symphony came. Families with high economic power are after all high in cultural sophistication, too. So when there is that kind of entertainment, those families bring their children along. Therefore, these children naturally become highly cultured. This is a big plus for children from families with economic power.

Many Japanese parents and teachers also said that they felt socioeconomic differences have been getting wider since the 1980s and that inequality has increased in Japanese society. One high school principal said that he sensed Japanese society was becoming more stratified by social class, with highly educated parents passing on opportunities for higher education to their children. A working class mother of a high school student echoed the principal's fear:

> The way it looks now, it is impossible to keep up by just going to school. One needs to go to *juku* nowadays. That is all right for students from families with money, but if you don't have money, unless you exert an enormous amount of effort, it is very difficult. I wonder if the system has to be such that it is sustained by family economic power, or could there be something different.

The role of *juku* in creating inequality in Japanese society was also criticized by an education official at Naka City:

> You can tell the difference between children who go to *juku* and the children who do not. Since children are doing the same work in school whether they go to *juku* or not, and have a knowledge-based education up to this point, those who practice are stronger. If we look at the results, those who learned something already, perform better in school. So, if our criterion is performance, then those who go to *juku* do better. We try our best to prevent this from happening. So we would rather not be oriented toward results. We should try to work with the family to motivate children to learn. Children who get the correct answers without thinking much and who do not like math—these students don't understand the fun of mathematics. The new curriculum wants to show those who have such understanding. We want to convince parents that it is actually a loss to go to *juku*, but it is very difficult to convince parents.

Regional Differences

Many Japanese believe that education is more highly emphasized by people living in certain prefectures than others. Indeed, there are significant differences in academic outcomes among prefectures. In 1993, for example, 33.5 percent of Tokyo high school graduates advanced to 4-year colleges versus 23.4 percent for those in Fukushima Prefecture (Trelfa, 1994).

The proportion of students who attend *juku* also differs greatly between urban and rural areas, and there are fewer *juku* in rural areas than in urban ones. This disparity has an impact on instruction in schools. In areas where there are not many *juku*, teachers must provide extra instruction for college aspirants:

> In our case, if you look at the school system and *juku* in the area and in cities like Tokyo, there are many *juku*. The schools don't have to do anything. But here in the outlying regions, there are *juku*, but it takes money and the schools take on some of the role of the *juku*.

This role includes setting up classes after school that prepare students for entrance examinations. But even with this extra help from public schools, students from areas where large national *juku* chains have not established branches are clearly at a disadvantage in studying for entrance examinations. One high school teacher in Kita City talked about a student from a rural region in the prefecture who came to study at his school. The teacher was impressed by this boy who had studied hard on his own, although "there were no universities or bookstores in his area of residence."

Conclusion

Monbusho exerts a powerful influence over every aspect of education in Japan and the *Monbusho* curricular guidelines are a central ingredient of that influence. In accord with *Monbusho* policy, the *Monbusho* curriculum serves both as a national standard and as a way to encourage equality of opportunity. Policies promoting equality are evident in prohibitions against tracking during compulsory education, the rarity of retention, the prohibition against skipping grades, a reluctance to report IQ test scores to parents, and the pressure to stay within the curriculum on the entrance examinations.

The Japanese have created a system of national standards through the *Monbusho* curriculum which sets a standard for the content of instruction rather than a standard which defines a particular level of performance. Teachers reported that few students who fail to reach minimal standards are denied graduation as long as they exhibit effort. As a result, nearly all Japanese graduate from high school although education is compulsory only through junior high school.

Competition to enter higher ranked schools through an entrance examination system, whether they are senior high schools or universities, serves to raise standards of performance. Constant testing throughout junior and senior high school train Japanese students to be expert test-takers. Many parents and teachers whom we interviewed reported that the pressure on Japanese children for higher performance

comes largely from parents and students, not the *Monbusho* curriculum or education authorities.

The elementary school curriculum was perceived as being relatively easy, and strong social, cultural, and family support for education ensures that many Japanese students enter school ready to learn. However, the junior and senior high school curricula become increasingly difficult in math and science as well as other subjects. Math and science standards are high: even vocational high school students, who follow the least rigorous academic curriculum among Japanese students, are exposed to calculus by the 12th grade. The system of entrance examinations for high school and college provides an important source of motivation for Japanese students to study and master the curriculum.

Japanese schools make efforts to meet the needs of average and slower students in regular classes. Simplified instruction, clear and simple sets of problems, lengthy explanations, and additional instruction are among the ways that Japanese teachers try to meet the needs of the slower students. In contrast, there are no programs for gifted students in the Japanese public schools.

Chapter 3

Individual Differences and the Japanese Education System

By: Hidetada Shimizu

Introduction

During the early phase of our research in Japan, my co-researcher, Gerald LeTendre, and I visited Arata High School as part of our *aisatsu*—our formal self-introduction. Having already sent the school a list of topics we intended to cover in the interviews, the purpose of our visit was to receive official permission to study and conduct interviews in the school. Upon our arrival we were escorted to the principal's office, where we met the principal and vice principal.

Initially, the vice principal did most of the talking, trying to take care of the business side of our research and making sure there would be the appropriate types and numbers of students, teachers, and parents to be interviewed. When this conversation was over, the principal, who had not said a word up to that point, said "Let's see . . . ," indicating that there was something bothering him.

He began by saying that LeTendre's research topic, "adolescents' lives," could be easily translated into Japanese, and everyone would understand what it meant. However, the notion of "individual differences" (*kojinsa*) might be more confusing. He explained in a politely modest manner, "You see, in Japan we are not much concerned with individual differences. You might say that Japanese education as a whole is not set up to accommodate individual differences. What we do here is provide education according to collectively established frames of reference."

While the principal tried to excuse the difficulty by courteously suggesting that the U.S. system of education might have a better way of dealing with individual differences, the vice principal addressed the practical question of how to inform parents about the interview's contents. Since the notion is not a part of everyday discourse

in Japanese schools, the vice principal felt that the term for individual differences (*kojinsa*) simply would not be understood by Japanese parents. In fact, the term would probably give them no idea of what to expect from the interview. Trying to think of a phrase that the Japanese parents would understand, the vice principal came up with a new title, *On the Subject of Studying in General.*

Another stumbling block for the two administrators was the notion of "ability differences." The direct translation, *noryokusa*, was among the most "politically incorrect" terms in Japan. I had unfortunately used this term when I asked them if students at Arata were divided into groups by ability differences; I immediately saw signs of apprehension in their faces. The principal expressed the concern that some teachers would object to the use of the term *noryokusa* since this term suggests that individual differences are innate. Such a view is usually taken as a sign of discrimination. The basic premise of Japanese education, the principal explained, is that students are born with equal abilities. Therefore, it would not make much sense to talk about "ability differences;" instead it would be better if we changed the term to *shujukudo* (difference in mastery levels). This term would imply that individual differences are created as a result of school work and individual effort, rather than naturally given ability; a much more acceptable idea. "If you used the term *shujukudo*," the principal continued, "nobody would complain." From this experience, I realized that an examination of the Japanese preference for the term *shujukudo* over *noryokusa* could give insight into the ways Japanese perceived and handled differences in students' abilities.

Field Research Methodology

All interviews and observations held in Naka City, the primary site, were conducted by Hidetada Shimizu. Interview and observation data from schools in Minami City, collected by Naoko Moriyoshi, and Kita City, collected by Gerald LeTendre, were shared with the author, and are reflected in both the chapter and the analysis.

In pursuit of information in Naka City on individual differences, interviews were held with 72 persons and observations were made in 17 classrooms. Interviews were held in 2 academic high schools and 1 vocational high school (27 interviews), 3 junior high schools (27 interviews), and 2 elementary schools (18 interviews). In addition, interviews pertaining to this topic were held in Minami City (15 interviews) and Kita City (19 interviews). Printed information obtained from schools, school boards, research institutes, and *Monbusho* was also integrated into research findings in this chapter.

All introductions to schools were arranged through the National Institute for Educational Research in Japan and cleared with the proper local school boards.

Most of our informants were serious and eager to provide the information we asked for to the best of their ability. Teachers were normally professional in their demeanor and identified strongly with their occupational roles. Some parents appeared awkward in the formal interview settings but became more relaxed as the interviews progressed. Students perhaps showed the greatest degree of difference in responding. Some were timid while others were talkative. Generally speaking, the younger the students, the more open they seemed to be.

There was a good deal of variation among the classrooms we visited, which were primarily math and science classes. Some of the classes were more animated than others. Some were more academically challenging than others. Regardless of the differences in the general atmosphere of the classes, they shared the characteristics of Japanese "whole class instruction."

Japanese Perceptions of Individual Differences

When a student is doing poorly in school, Japanese parents and teachers would most typically attribute his failure to lack of effort or family support. They would say, "If you study hard, and your parents support your effort, anybody can be a good student." What is downplayed in the Japanese discourse is the idea that abilities are given naturally to some people and not to others. To the Japanese, abilities are "earned" through hard work.

The typical Japanese view is that people, with the rare exception of Nobel prize-winning geniuses, are born with equal capacities to achieve and to demonstrate excellence. Like diamonds in the rough waiting to be polished, it is up to the individual and various educating agents in their environment (e.g., parents and teachers) to decide how much they would like to refine and strengthen their potential. As one elementary school teacher told us, "As far as inborn ability goes, I can't say that it isn't there, but I say that it doesn't matter. Regardless of whether you have ability, if you persevere, you can get a good outcome." Without being preoccupied by naturally given abilities, the Japanese emphasize the process and the contexts of learning.

The following conversation illustrates the overall Japanese attitude toward innate ability:

> Interviewer: Do you think IQ is important?
>
> Teacher: I don't know exactly what IQ is, but I think it is not an innate thing. I think after the birth, one increases the level of his IQ through much stimulation. Excluding a few special people, I think everyone's IQ can be increased. (Shimogawa Junior High School Teacher)

I asked Japanese teachers, parents, and students, "What percentage of a student's ability can be accounted for by innate ability and how much by learning and a good environment, assuming the child is not learning disabled?" Seven out of eight of the respondents said that the experience and environment accounted for more than 70 percent.

In Hasu Elementary School, I asked 4th-, 5th-, and 6th-grade students whether or not they thought some people were good at math because they were biologically more capable. A fourth-grade girl said she thought people who accumulated knowledge when they were young became smart, and people who did not accumulate knowledge when they were young became unable to understand. Then a 5th-grade boy underscored this opinion by saying, "I don't think there is much difference between people when they are born. As we grow older, we experience and learn many different things. Those who decide to study hard are the ones who are called smart and geniuses today. Those who did not listen well when they were little, and still don't listen now, are getting what they deserve."

Students at Tancho Elementary School also described this simple belief that "if you study, you do well" as follows:

> Besides the social class or status—like whether or not you were born as a member of the royal family or a commoner—I think we can overcome anything if we work hard. If it is studying, one will be able to do it well by studying at home and listening to his teacher. There is not a person who is innately, biologically smart. If a person does not keep studying, she gets worse and worse at studying. So I believe academic achievement can be changed by studying hard and listening to the teacher.

I heard the same overall opinion about the relationships between the innate versus environmental determinants of the ability differences from parents. The following is a typical conversation one can expect with a Japanese parent:

> Interviewer: To go back to the topic of "family atmosphere," this (home environment) is not something you would call "innate" to a child at all, is it?

Mother: No, it's just like a habit: something to which you become habituated from early on which affects what the child does later. If the child acquired the habit to study from early on, he or she would be able to study easily.

Interviewer: How early is "early on"?

Mother: It is the age at which the child recognizes that he or she is being praised with words like "You draw such a beautiful flower."

Interviewer: How old is that?

Mother: I'd say two or three years old.

Interviewer: Does a two-year-old really understand that he is being praised?

Mother: Of course. And that's the beginning of all learning.

Interviewer: Now to go back a bit, I mentioned what one considered as inborn differences.

Mother: Inborn differences are almost like the certificate of breeding. Someone who says, "My child is great by birth," must come from a very selected breed of family.

Interviewer: Now, as far as academic ability is concerned, how much of it do you think is innate or experientially formed?

Mother: The experience, I'm sure.

Interviewer: How so?

Mother: Seventy or eighty percent is experientially or environmentally caused. The rest is innate. The innate factors shouldn't take up so much.

Interviewer: Why do you feel so?

Mother: (pause and with laugh) I speak from my own experience!

Interviewer: Is that so? Tell me how you were or what you did.

Mother: (She thinks hard) It could be the hardship that I had to endure or the environment that did not allow me to be lazy .... For one thing, as long as I was facing my desk, my parents looked happy.

Interviewer: Did you study hard?

Mother: No, I wish I had studied more. I had so many things I wanted to become.

As one can see, Japanese students and parents do not completely deny the presence of talented or gifted people. But because they say that such people are so rare, and that one need not have a special talent to do well in school, they believe that innate ability counts little toward overall success in a student's academic career.

Japanese teachers, on the other hand, would seem to have a more realistic view than students or parents. Generally, teachers are more likely than students and parents to acknowledge the presence of innately given abilities as predictors of school-related academic success. However, when asked to evaluate the relative importance of innate abilities in determining academic outcome, they too put much more emphasis on the effect of experiential and environmental factors than on innate factors.

The opinion given by Mr. Togo of Naka Vocational is one such example. He said an elite athlete can run a 100 meter dash in 11 seconds, whereas he (a man in his forties) could do so in 15 seconds. He said that the practice alone would not make him run as fast as the elite runner. In the same way, some ability such as remembering as many items as possible in a given time period could be innately determined, so that one can improve his or her performance to a certain extent, but there's a limit, because everyone is born with different levels of ability.

Mr. Togo and other Japanese teachers, parents, and students used several words such as *saino* (talent or giftedness), *soshitsu* (innate abilities or gifts), *hirameki* (inborn senses), which correspond with the English words ability and talent. They believe that these abilities help very bright students climb to the top (provided that they make effort), but are unreliable measures of academic success for the rest of the students because innate ability is only a fraction of their total ability. Mr. Togo explained, "You must also remember human ability consists of many different dimensions. Some of them may be innate, but others aren't. If a person's ability consists of many different elements, as I believe, one cannot compare two people and say one is inferior to the other. As a teacher, I see a student having many different combinations of ability."

Kinds of Individual Differences

Indeed, schooling demands that students demonstrate many different combinations of ability, and going to school and succeeding there takes much more than simply being smart. For example, students are expected to display basic discipline and responsibilities in school. They must show respect for teachers and pay attention in class. Students are expected to behave in a certain way; therefore, it may not be surprising to find that many Japanese talk about individual differences in terms of observable behavioral differences.

Concrete Classroom and Academic Behaviors

Most teachers, and homeroom teachers in particular, rely on observations of classroom behavior in evaluating individual differences. For example, a math teacher said, "I find differences when I give them some questions. Some students can understand what they are being asked right away and some cannot." (Teacher, Shimogawa Junior High School)

Another example is as follows:

> I realize [individual differences] by looking at ways students respond to my questions in class. Those at the bottom cannot even begin to solve the problem. For example, they would copy a graph and could not go any further from there. They just sit there afterwards. Students at the next level actually start thinking about the problem, but they cannot arrive at the answer. Students at the next level can come up with answers, but only a few of them are correct, and others are incorrect. Students at the highest level can almost always come up with right answers. In fact, there is yet another higher level of students who can answer questions I give in class. Feeling unsatisfied, they would find more difficult questions in an exercise book and try to solve them on their own.

Students talk about their differences in a very similar way. They say that there are "those who pay attention in class and those who don't" (Student, Naka Vocational High School). They also see the difference in attitude toward exams: Some people prepare for exams seriously and some don't (Student, Naka Vocational High School). There are "those who do math and Japanese drill books fast and those who don't; and there are those who raise their hands in class and those who don't" (Student, Tancho Elementary School). A typical response was as follows:

> In English class, a teacher asks each of us a question, and some people answer promptly, but some get stuck, and the teacher has to explain to them. Even after hearing the explanation, some of them do not understand, and in times like those I feel they can't do well. In any class, those who can do well raise their hands to answer questions, and it seems that we have the same people raising hands. (Student, Chuo Junior High School)

Exam Scores

Another way for teachers and students, especially those of upper grade levels, to define students' individual differences is in terms of exam scores, which they see as the direct, concrete results of behaviors mentioned earlier. This method of definition is not surprising in light of the emphasis Japanese high schools place on the college entrance exams. In fact, most high school teachers and students are quick to rede-

fine individual differences as differences in "acquired academic ability" called *gakuryoku*. (*Gaku* means "academic" and *ryoku* literally means "power".) Just as *shujukudo* is different from the English term "ability differences," the word *gakuryoku*, too, must be distinguished from what is meant by "academic ability" in English. Like *shujukudo*, *gakuryoku* is not innately given ability, but it is ability acquired through cumulative effort. For example, a teacher or parent would tell a high school student getting increasingly high scores on practice exams that he has acquired more *gakuryoku* lately.

When I asked the science teacher at Meiji whether or not he thought there were individual differences, for example, he responded immediately by saying, "In high school, students' ability (*noryoku*) is judged by exam scores." The response of the 18-year-old female student from the same school was more explicit:

> In school, our [students'] existence is shown by numbers: grade points on report cards, exam scores, standardized scores on mock college exams, and so on. The school routinely posts results of the trial exam on the wall of the main entrance hall for only the top 35 students out of 400. That's how we know the differences.

The mindset of seeing individual differences in terms of exam scores is also reflected in the Meiji math teacher's response. When asked how wide he thought the ranges of differences among students might be, he said, "On an exam in which the highest score is 100, I have students scoring from, say 15 to 95 points. That's the way I know how much difference there is among my students."

Personality

That Japanese teachers, students, and parents talk about individual differences in terms of concrete classroom behaviors and exam scores may be an indication of their belief, "you do well only if you study." To them, individual differences reflect a combination of many different abilities acquired through effort. Innately given individual differences are seen to be aspects of personality, not ability, differences.

Thus it is not surprising to see the teachers, students, and parents mention personality (*seikaku*) as one obvious sign of individual differences. Among the three groups, parents seemed to express this opinion most strongly, because they had first-hand knowledge about personality differences among their own children. Their typical response sounds like, "I could tell from my two children that they were different even at moments of their birth. My first child, my son, took so much time to drink milk, and the second child, my daughter, drank it quickly."

Many parents, teachers, and students say personality differences come from innate factors, and they discuss such differences in terms of concrete, observable personality characteristics that contribute to divergent patterns of learning habits and processes.

For example, a mother at Meiji told me that her son was an accomplished *kendo* (Japanese fencing) player who competed strongly in national tournaments. She believed that there was similarity between *kendo* and math, for in order to excel in them, one had to be "strong minded." She described her son's personality as: "If he gets hit twice by his opponent in *kendo*, he cannot be satisfied until he hits his opponent back three times more than he was hit." She suggested that his personality contributed to his habits in learning. "In math," she continued, "he never lets difficult [math] problems defeat him. He would go attacking them until he is able to solve them." Similarly, the student at Tancho Elementary School acknowledged that people innately had different personality characteristics. She then went on to describe those characteristics in terms of behavior that "some people give up easily, and some have to try everything." As the mother of the *kendo* player believed that her son's personality affected his study habits, she also said, "differences in personality contributed to the differences in their ability to do math."

Because the Japanese define personality in terms of observable behavior and demonstrated competence, they think they can foster, strengthen, or change innate personality. Emphasizing the effect of environment on personality formation, a high school science teacher argued:

> I don't like that word, innate ability. Excluding the disabled, I think the students display their ability in different ways because of personalities: some work diligently, and some look at the surface. Even that (personality) has to do with one's environment—how the child rearing is done at home. Though very small, there may be innate factors in individual differences. A child, for example, may not be good at memorizing, but the child can think and observe well. Or the child may have more ability to do sports than academics. (Teacher, Meiji High School)

In summary, the Japanese perceive personality to be the product of both nature and nurture.

Sources of Difference

Lack of Study

When one asks a Japanese why a student does poorly, particularly in mathematics, one of most common responses she receives would be, *benkyo busoku*, or lack of study. Pointing to the lack of study as the very reason for one's poor academic performance is reflected in the commonly used word, *yudan*. *Yu* means oil, and *dan* means to be out of. "Don't run out of oil," parents and teachers say, meaning, "Don't ever think you have studied enough." Just as people before the time of electricity had to make sure that they did not run out of oil, the students have to make sure that they are well prepared in their effort to do well in school. A junior high school student testified about the danger of *yudan* as follows:

> A friend in your class might say, "I'm not studying so much for this exam." If you believe such a statement, you tend to goof off, too. But it usually turns out that most other people in the class are studying really hard, and you end up being at the bottom of your class. (Parent, Midori Junior High School)

The Japanese see the learning of math in particular as a result of cumulative effort. For example, *tsumikasane*, the Japanese word for "accumulating knowledge," means building one thing over another. In order to erect pillars, a mason has to lay cornerstones first upon which the pillars will stand. This was the dominant image by which Japanese teachers, parents, and students explained how academic competence was built.

Nearly everyone we talked with agreed that elementary education was the basis of junior high and high school education, and that math education epitomized this principle. As one parent said:

> Math ability is something you accumulate over a long period of time. If you neglected your effort to build the foundation of basic arithmetic in elementary school, you would not be able to build anything else on top of that. That's when a student becomes bad at math. (Parent, Naka Vocational High School)

One teacher said:

> For some students such basic things as the reading and writing one learns in elementary school have not become part of their habit. They do not lack ability, but they simply neglected to lay the proper foundation at that stage.

Students generally agreed with parents and teachers. For example, as a reason for doing poorly in math, a high school student noted, "Math is accumulation

(*tsumikasane*)! Even when you are in elementary school, if you cannot do addition and subtraction, you cannot move on to the next level." Her classmate affirmed this opinion by saying," I think there is a point where such students get lost. Once they get lost, they will not learn anything that will be introduced to them thereafter, unless they do something to understand the materials about which they got confused" (Student, Arata High School).

Teachers and parents stressed that in this process of *tsumikasane* there was a critical period which came at the end of the third grade when the concepts of multiplication and division were introduced. Knowing the importance of mastering addition and subtraction beyond arithmetic in elementary school, the parents I interviewed recalled the kinds of assistance they provided for their children:

> No one dislikes math to begin with. Take functions, for example. It combines multiplication, division, and all the basics. If you have solid understanding of these basics, you understand functions, and you'll come to like functions. That is why I spent so much time working with my children when they were in elementary school. They learned addition and subtraction on their own. But it took effort for them to learn multiplication. Parents must help at this critical time. Parents have to be very serious about children's academic progress from third to fourth or fifth grade.

This observation was echoed by a junior high school math teacher who reluctantly admitted: "I think the differences in academic abilities were caused by different degrees of mastery in the notions of fractions and decimals in elementary school." He said in one of the previous schools in which he taught, he had a significant number of students having trouble with math because most of them could not understand the notions of fractions and decimals.

While seeing mathematics learning as a cumulative process, the majority of Japanese teachers, parents, and students regard mathematics as primarily a technical, as opposed to purely intellectual, undertaking. This trend resonates well with the findings that individual differences in academic performance are typically assessed in terms of concrete academic behaviors and exam scores.

One memorable response was given by one top student who was in the math and science track at Meiji High School. To the question about how she became so good at math, she suggested that her success came from "just knowing how to solve problems." Then she added, "The way I am studying is to get good scores, and not to accumulate some deeper understanding. Getting good scores is a matter of knowing technical things." A math teacher at Arata High School reiterated this opinion:

> The math I learned in high school and the math I learned in college are two very different kinds of mathematics. I was always a poor math student. That's why I'm a math teacher now. Real mathematics has to do with logical thinking. When you think logically, you often find truth in logic's logicalness. It is a thing of beauty to be able to find such truth. This is a very moving experience. In high school, however, we don't even touch upon such beautiful aspects of math. We just deal with mathematical skills. In my opinion, just because you were good at math in high school, you should not automatically think of majoring in math in college. For example, if you liked differential and integral calculus in high school, you should contemplate majoring in engineering rather than mathematics. The mathematics taught in high school is a very practical one. In an average school like this one, we spend almost no time teaching "theories" of mathematics. So being a good student in a school like this—or I should say in the majority of Japanese high schools—gives you no guarantee that you will do well in a collegiate department of mathematics.

A math teacher at Meiji High School said it is not difficult to explain why some students do poorly and others do well in math because "in most Japanese classrooms, exam questions are taken right out of the materials covered in class." In his class, about 90 percent of exam questions are the same as those in the textbook. He arranges the difficulty level of these questions so that the class as a whole would score an average of about 55 points. He continued saying that a student would be considered to be "bad at math" if he or she was able to correctly answer only 20 or 30 percent of the problems. And to have such a score when "about 90 percent of my problems are taken right out from the textbook" can only "indicate lack of study" on students' part. His junior high school counterpart endorsed this view by saying "as far as junior high is concerned, I think students can solve most problems with effort. After all, they are tested on what's covered in class."

Then what does one have to do to master such technical skills to get high exam scores? Our data suggest two major ingredients: First, paying attention in class, and second, preparing for (*yoshu*) and reviewing (*fukushu*) materials covered in class daily either at home, at juku, or preferably at both.

Japanese teachers, parents, and students say classroom learning is not automatic. Instead, its success depends on how well students pay attention. A teacher at Arata High School described high-achieving students as: "ones who listen to our lecture very attentively. They are eager to catch every small detail we teach. Second, if they know any different way of solving problems, they raise their hands and speak up, giving their opinion in class. An elementary school pupil described the same principle, "The most obvious reason is that some people don't listen to the teacher in class. The students who do well are listening very attentively, but the students who don't do well

give up easily." A junior high school student asserted boldly: "Everyone is listening to the same lecture, and if we listen, we should be able to do well on exams."

It is assumed that the materials covered in class have to be practiced over and over again on a daily basis. When I asked what students must do in order to do well in math and science, my informants responded, "Solve practice problems daily and learn from mistakes" (Teacher, Arata High School), "Practice solving problems over and over" (Student, Shimogawa Junior High School), and "Make an effort to study on a daily basis, and one can make tremendous improvement." (Parent, Naka Vocational High School) For a mother at Arata, effort made on a daily basis was important because she immediately saw the difference reflected in her child's test scores. She said that when her daughter studied consistently before the exams, she always got better scores. In order to help her daughter keep up the daily exercise, she used the athletic metaphor by telling her:

> When you were in the fourth grade and first joined the basketball club, you could not dribble at all. But now you can do it without even looking at the ball. It is important not to neglect effort. No matter how little your progress is, you still have to keep working every day.

In short, Japanese teachers, parents, and students preach the importance of effort simply because they believe it works. The following two testimonies of a high school math teacher and a junior high school student further prove their strong belief that "if you study you do well."

> Let me tell you how I came to like math. I am not a person who was always good at math. As I said, I felt a kind of pride when I received praise from teachers in elementary school. I thought I was pretty good at math then, but when I entered high school, math became very complicated. So I decided to do the workbooks titled *Algebra 700 Questions*, and *Geometry 700 Questions*. It took a very long time, but I tried to do them without asking teachers and looking at their answer sheet. After making a strong effort for some time, I suddenly began to understand them. It just dawned on me. After that point, it was like a snowball accumulating more snow each time it rolled. In the beginning, when the ball is small, it does not collect much snow, but when the ball becomes big, it can collect so much snow by rolling just once. To me, learning math was exactly like that. I felt so great. When you are making an effort in the beginning, it seems like you are not gaining any understanding, but if you persevere and continue to work hard, you will see your understanding grow. I think students who experience such an excitement think math is interesting and do well in it. (Teacher, Arata High School)
>
> There is a student who gets really bad grades, but when he was in elementary school, he got 90 out of 100 points on one of the Japanese exams. So we are all saying that he can do better if he makes an effort, but whenever we tell him that, he would just say he isn't smart enough. He has made up his mind that he cannot

do well in academics. People become stupid when they decide for themselves that they are stupid. If anybody makes an effort, he can do better. (Student, Chuo Junior High School)

Lack of Motivation

The Japanese often describe their nation as "a small island country with few natural resources, but plenty of people who are willing to work hard." Thus, the Japanese have given higher regard to people with high levels of motivation than to those with only ability or talent. Undoubtedly, this underdog mentality has a direct impact on how much energy people put into their work. One principal told me, for example, "We've been basically a poor country with no resources up until recently. Poverty motivated the nation as a whole to catch up [with the West], and before we knew it, we had achieved this goal."

The motive to do well is considered to be a virtue in its own right, and to encourage students to study hard, Japanese teachers and parents often use the expression, "If you tried your hardest, it wouldn't matter if you succeeded or not." We found three categories of motivation that teachers, parents, and students believed to have contributed to success at school: (a) having interest in (*kyomi* or *kanshin*) or liking (*suki* or *tanoshii)* to study, (b) having a willingness or desire (*yaruki*) to study; and (c) having the right attitude (*taido*) for studying.

Interest in and liking to study. "If you like it, you will be good at it" (*suki koso mono no jozunare*) is a Japanese saying. Japanese teachers, parents, and students take this philosophy to heart. A teacher at Naka Vocational said that for the majority of his students who did poorly on math, studying math offered no rewards. He said that since these students could not even recall times when they felt that studying math was enjoyable or satisfying, he had to go back to where the student had stumbled and have her re-experience that studying math could do good for her. I asked a mother why some junior high school students did well and others did poorly while pointing to the bell-shaped curve I had drawn to indicate variation among students. Pointing at the higher end of the bell curve, she said, "You know those students up here . . . They just love math. They like to solve math problems, including applied problems. They are just like that." Students shared the same view: "Students who wonder and become interested and curious usually do well, because they keep studying and trying to find out answers." (Student, Tancho Elementary School); "People who are good at math are that way because they think it's fun. Those who are bad at math usually don't like it."

Willingness or desire to study. Yaruki, the Japanese word for motivation to achieve, is made of two parts, *yaru*, "to do," and *ki* "mental energy." *Iyoku*, on the other hand,

means "desire to motivate oneself." The American phrase, "Nothing is impossible if you put your mind to it," comes fairly close to this Japanese emphasis on the desire and willingness to do things well. The Japanese take it for granted that nearly all achievement behaviors are based on strong motivation.

Japanese students are surprisingly candid in attributing the reason for poor performance to a person's lack of motivation. An elementary school pupil even told me that most of those who did not do well in math could actually solve problems, but since they were not willing to study or think by themselves, they told everyone that they could not do math. "All they do in the classroom," she continued, "is talk to their neighboring students and do not listen to the teacher. That's how they become bad at math." A high school student echoed the same logic by saying, "Students who lack willingness say, 'I don't understand,' but if a teacher comes around to their desk and makes them do problems, they are able to do them. So they do understand, but just lack willingness to study."

For teachers and parents, the willingness to study is regarded as one of the necessary factors on which students depend for their success. One high school teacher remarked that if students did not have a willingness to study, it would not matter whether they were good or bad at math, because "either way, they would not listen to what the teacher says." But with a little bit of willingness, the teacher can produce improvement in a student at any level because "after all, we are trained professionally to do just that." One parent put it succinctly: "Motivation. That's all that counts. Unless you are a genius, success depends on how hard you are willing to work."

Attitude. Another way Japanese consider motivation is through one's attitude. One teacher at Naka Vocational High School suggested "the most important reason for differences in students' academic performance is the attitude–that is, the manner with which a student approaches tasks." Having the right attitude for the Japanese means more than being serious or diligent about studying. Having the right attitude toward study is being ready to learn and absorb new lessons physically, mentally, and spiritually. The teachers' particular concern for their students in Naka Vocational reflected this point. That is, they thought that their students tended to regard themselves as underachievers for various reasons and affirmed this negative perception for themselves. One teacher noted that there were two types of students at Naka Tech, "those who came here to study what we offer–vocational education– and those who came here just to pick up a high school diploma." He said those who were simply aiming to get the diploma tended to have what he called, "I-will-just-turn-my-back-on-the-problem" approach. Their attitude was, "Whatever grades I get, I will be satisfied." But the attitude of those who did well was that "I'm going to understand this problem." The teacher described how these types of attitude made a huge difference in how well students did at Naka Tech, and stressed his point by saying: "Imagine you were in an accident. If you are willing to go through rehabilitation, you will improve. The

recovery might be slow but you will improve. But if you refuse to do the rehabilitation activities, you will never improve. It's the same principle."

Family Backgrounds

If interest, willingness, and attitude are what propel students to study, where do these motives come from? "Family environment," the majority of Japanese teachers, parents, and students would answer. An elementary school teacher explained: "When I think of environment, I think of how parents themselves are interested in studying. When children are studying, are parents reading books [versus engaging in non-intellectual activities] themselves? That's what I mean by environment." (Teacher, Nio Elementary School) This comment indicates that the Japanese believe that ability differences are created at home, rather than acquired first in school or by birth. Japanese families possess at least three factors significantly affecting students' academic performance: (a) parental encouragement to study, (b) socioeconomic status (SES), and (c) locality (*shusshin*).

Parental encouragement to study. When referring to their children, Japanese parents typically call them *uchi no ko*, literally meaning "the child of our family." Also when they are asked how they helped their children study, they would often begin the sentence with the words, *uchi no baai wa* (in the case of our family). The use of the word *uchi*, or our family, indicates that in Japan, children are seen as being interdependent members of the family, working under the emotional, intellectual, and economic sponsorship of parents. Therefore, how a family as a whole emphasizes education is crucial for a child's academic success, because Japanese do not believe young children acquire such values for themselves. Parents, students, and teachers suggested that children who received much help and encouragement from parents to study at home, especially during elementary school years, did well in school.

As noted earlier, the Japanese believe that knowledge in math and science is acquired cumulatively. To miss an early step can lead to failure in later years. Many parents, therefore, consider helping children develop appropriate study habits in the elementary school years as being crucial for both current and later success. A parent at Midori Junior High School explained: "If a family creates the right environment for studying, it certainly makes a difference. You need to lay down the track for children from early on; otherwise, they won't know which track to be on." Another parent felt that mastering multiplication and fractions by the end of the elementary school years was critical for her child's future success. She made relatively easy multiplication and fraction work sheets for her child to do at home and rewarded her child with a *hanamaru* (badge of flowers) for every exercise the child answered well.

Some students attributed their success in school directly to the parental encouragement they received to study, as a boy at Tancho Elementary School testified:

> I think my grades improved only because my mother pushed and trained me. I used to be very impatient. The way I was doing math was that as soon as I copied problems on my notebook, I tried to write down the answers. I did not give much time to think. My mother told me that I needed to be careful even about my handwriting in my notebook. Instead of merely copying the problems, she told me to write neatly, and after that she told me to go through each thinking process to get to the right answers. She reminded me that in the process of getting answers, I may need to do a few calculations, and I should use the margin of my notebook to make sure my calculations are correct. I used to try to solve problems as soon as possible, so I did calculations in my head. I could use my abacus skills, too, but I have learned that writing down calculations as my mother told me was the most accurate way. Without my mother, I could not have been good at math. I think if she were not there for me, I would get zero on the exams.

Teachers also emphasized the importance of the family's involvement in education. A math teacher at Shimogawa Junior High explained, for example:

> Some students are good at math because they have been raised in an environment in which they were taught the importance of making an effort. As a result, they naturally make efforts when they face hardships. If parents raise their children in the environment which stimulates them in many ways, they also acquire many things through such an environment.

A science teacher from the same school suggested that if parents stressed that things learned at school were important, children would take studying seriously. He explained:

> What they learn in school is only a small part of their learning. If they cannot apply what they learn at school in their daily life at home, then whatever they are taught at school will not remain as their knowledge. Whether or not the parents could provide such an environment and lots of stimulation is very important. (Teacher, Shimogawa Junior High)

Socioeconomic status. It is difficult to identify the Japanese opinions about the effect of socioeconomic status on academic achievement of students, because the public consensus is that there are no socioeconomic status differences in Japan. Without building upon systematic data or observations, the public simply assumes this perception. As LeTendre (this volume) notes, Japanese teachers surprise foreign visitors by saying that a school consists mostly of students from middle class families such as those of factory workers and self-employed merchants. The reality is that Japanese students come from a wide range of socioeconomic backgrounds, and such differ-

ences are clearly one of the most significant and permanent predictors of students' academic and occupational prospects. That each school district represented a different academic ranking is one such example. According to one teacher at Meiji, even within Naka city, junior high school students coming from the port district (industrial area) on average score lower on standardized mock exams than those coming from the hill districts (suburbs). His colleague at Naka Vocational also acknowledged:

> I do not have the exact data, but, for example, if you compare the family income of students who attend a university with those who are high school graduates and who are junior high graduates, you see a big difference. (Teacher, Naka Vocational High School)

At a specific level, the differences in socioeconomic status were broken down by parents' levels of education and occupation. A teacher at Midori Junior High School focused on the effect of parental education on students' achievement:

> If parents have a certain level of education, they expect the same for their children. Parents in this school have a somewhat higher level of education than those in other schools, and they have high expectations for how well their children do on exams or how high their children's grades should be. (Teacher, Midori Junior High)

Students at Naka Vocational High School also said:

> The environment your home creates has something to do with individual differences. Maybe some people are from a family that owns a business, and they have to help out. They don't have much time to study.

When a child shows socially unacceptable behavior, such as speaking in vulgar or coarse language, the Japanese use the expression that such behavior "reveals the child's upbringing" (*sodachi ga wakaru*). The word *seiiku* is the formal word which describes the family background. A teacher at Arata High School used the notion of *seiiku* to describe its effect on students' academic achievement.

> What I call *seiiku* is a big factor in determining students' ability differences. It's the environment in which you were born and grew up (*umareta toki kara no kankyo*). It's where you are molded into a human being. It is where ability differences are created in the first place. For example, you may have a father who works in the field of math, electronics, or science, or you may have a father who is a construction worker. Having one type of a father over another can give you a totally different kind of environment for you to grow up in.

Teachers use extreme caution when they talk about socioeconomic differences among families. At Hasu Elementary School, for example, the principal told me that

his school was located in a town whose name was the same as one of Tokyo's "up town" wards. He then jokingly told me not to hold the same image about his school district, because it was in one of the poorer areas within Naka City. He also asked me not to ask teachers about their educational background, or to ask parents or children about their family occupation, because these were considered to be highly sensitive areas. Both the humor about the city's name and the warning about not asking teachers, parents, and students about their backgrounds suggested that discussion of socioeconomic differences remains a taboo subject in Japan.

Locality

In Japan, living in one of the major metropolitan areas or the remaining provincial areas makes an immediate difference in people's judgment concerning a student's level of academic achievement. One teacher at Meiji succinctly summarized the effect of urbanization on students' levels of academic achievement as follows:

> Teacher: For example, you see the difference between junior high schools in a big city and those in a small rural town. The students, after graduating from junior high, go a different direction. That is, depending on districts, there are junior high schools which contain a lot of students who probably end up going to college and also there are junior high schools whose students would most likely start working after high school. I can even see that in Naka City.
>
> Interviewer: Does that mean that the students in a big city will go to college more often than those in a small rural town?
>
> Teacher: Yes, there is such a tendency, but behind that fact, we have to consider the financial status. In a big city, there seem to be families that are doing okay financially, but in the countryside, you see parents who cannot afford to send their children to college.
>
> Interviewer: Though living in the countryside, a family would have a different situation if the parents have a high income and work as doctors.
>
> Teacher: Yes.

Although Japanese education does not permit tracking, Japanese teachers, parents, and students share the view that in public elementary and junior high schools, all children have the right to be treated equally.

Compulsory Education as Whole Person Education

The idea of equality is grounded in the larger cultural ideology of "group life" (*shudan seikatsu*). Basic to this ideology is the belief in the inherent goodness and sacredness of people living as members of a group or society, along with the danger or even immorality of living apart from it. Accordingly, equality in Japanese classrooms means giving each student a place to belong by having him participate in the group-based problem-solving processes, regardless of ability. The Japanese believe such inclusiveness is the essential component of "whole person education," which is the trademark of their compulsory education system.

During my interview with three male students at Naka Vocational, for example, I asked them if they thought Japanese education was fair, and if so, why. Even these high school students whose school ranked below its non-vocational counterparts shared their deep faith in the fairness of Japanese education. The first student said it was fair because:

> Those who are smart and those who are not smart study together in one class. No matter how smart or not, you can receive the same education, and this is true at any level of the Japanese education—elementary, junior high, and high school. The education at this school is fair in the same way, and I think it's good.

The second student agreed:

> I, too, think it's fair because teachers address their lectures to the whole class. I do feel kind of bad for the students who do poorly, so I cannot really say if it's good or bad.

The third student explained:

> I think it's fair for the same reason. Dividing students is like attaching labels. Students who are not smart will think of themselves as dumb students, and once they believe they are not smart, their academic performance will become worse and worse.

Lack of Instructional Grouping

Japanese teachers almost never group students by ability in the classroom. We identified only one such case, that of a third-grade mathematics class in Minami City in which students were divided into "advanced" and "non-advanced" groups and were taught by two separate teachers. The principal explained that ability grouping inside a classroom was still at the "experimental stage" and would be acceptable "only in a provincial city such as Minami where teachers know their students well enough to communicate to them that the ability grouping does not indicate permanent labeling."

In the remaining schools we visited, ability grouping inside a class was regarded as a strict taboo. Students in many high schools are assigned to different classes on the basis of ability and future plans. But even in high school, students will not be divided within the classroom because educators generally believe that ability grouping is discriminatory, hurts students emotionally, and that having mixed-ability classrooms is the right thing to do.

Ability Grouping Is Discrimination

Japanese teachers, students, and parents take it for granted that students are not grouped by ability differences in public schools. Therefore, they are usually surprised when they are asked why students are not divided by differences in their ability. Nevertheless, the question evoked a deeply held emotional attitude of Japanese teachers, students, and parents whom I interviewed that separating individuals according to merit is a serious violation of the Japanese idea of fairness. Specifically, one high school teacher explained:

> Teacher: If the school separates students according to ability differences, what the school is doing is discriminating among students. This goes against the school's basic goal of having students learn as members of a group.
>
> Interviewer: Do you really think this is discrimination?
>
> Teacher: Yes, because you are treating students who are able in one way, and those who are not so able in another way. This is not what teaching should be.

A ten-year-old girl at Tancho Elementary School also expressed her disagreement with the practice of ability grouping as follows:

> Interviewer: What do you think would happen if your teacher assigned you to be seated according to your ability?
>
> Student: If the teacher does that, everyone will get upset and say that is discrimination.

Interviewer: Why is that discrimination?

Student: School is a place where the teacher has to teach everyone fairly. If the teacher puts only the smart students in certain seats, it becomes clearly known to us all who the good students are. That will hurt the students who cannot study well.

Ability Grouping Harms Students Emotionally

The second reason cited against the use of instructional grouping was that it would hurt students emotionally so much that they would lose their motivation to study. For example, when asked about the validity of using instructional grouping, a middle-aged male teacher immediately immersed himself in the following thoughts:

> I put myself in their situation and imagine that I happen to be placed in a group which is the lowest in ability. I would feel very bad. So I do not want to divide them according to their ability. (Teacher, Naka Vocational High School)

A junior high school teacher echoed similar thoughts:

> If I use instructional grouping, those who are placed in a slow group would feel very ashamed. When I think of how they feel, dividing them has a more negative than positive effect. (Teacher, Shimogawa Junior High)

A parent explained that, in his opinion:

> Grouping would be a welcome opportunity to let students' abilities grow, but for those who lack a competitive spirit, it would cause them to lose their willingness and interest to study. (Parent, Meiji High School)

Lastly, another teacher described the negative emotional effects of grouping when he explained:

> Those who are in the slow group will not do any work because they would be discouraged by the fact that they are placed there. They feel their teacher gave up on them and also feel that their peers look down on them. I think it is very unbearable (*kutsujoku teki*) for the students to be labeled like that.

Moral Benefits

The last reason against the use of instructional grouping was that a mixed-ability classroom can yield pedagogical as well as moral benefits. Teachers explained the pedagogical benefit of teaching to a mixed-ability group as follows. First, a science teacher at Meiji said:

> In science, it is more meaningful to put both the students who are doing well and those who are not in the same group, because those who are not doing well tend to raise a basic, simple question, and by listening to them and helping them understand, those who are doing well are given an excellent opportunity to review and confirm their ability. (Teacher, Meiji High School)

A technology teacher at Naka Tech affirmed this view by saying:

> Sometimes, those who are able and those who aren't learn more because they learn from each other. For example, say we have a very fast learner in a group of six. This student can deepen her understanding by teaching the rest of the group what she knows. (Teacher, Naka Vocational High School)

Japanese educators advocate the advantage of mixed-ability classrooms not purely for its practical pedagogical benefit, but also for its moral benefit. At Hasu Elementary School, for example, parents from the largely working class neighborhood expressed their genuine appreciation for the school's effort to include learning disabled students in regular classrooms. By using a popular Japanese saying, "*Yononaka ni wa iro iro na hito ga iru kara*" (The world consists of many different kinds of people), she praised this effort as, "It's great to know that my child and his friends are spending time with learning-disabled children. It's a great learning experience."

Mr. Tanaka, a teacher at Tancho Elementary School, was the most articulate proponent of this view. Asked what he would do if he had to group students, he said, "If I absolutely have to divide them, I would have to have a class with a few learning-disabled students. But to isolate students who are doing very well is meaningless." He was quick to point out that it was easy to teach a class consisting only of advanced students. But he said such grouping should be reserved for some top-level academic high schools where they just have to face the reality of the college entrance exam. However, "elementary education has a distinctive goal of creating 'well-rounded' human beings."

Since I heard many other teachers emphasize the importance of teaching a mixed-ability classrooms, I asked Mr. Tanaka if Japanese teachers were advocating the goodness of mixed-ability classrooms simply to repeat the official slogan of Japanese elementary education. The question upset him. He insisted that he sincerely believed in the importance of mixed-ability instruction as follows:

> Teacher: When I think of students who are at the elementary school level, in order to guide them to be solid, well-rounded human beings—I have already said that this is the most important thing we have to do in elementary school. I cannot place them in a setting in which everyone excels academically; everyone does not see problems as problems (because everything is easy for them), and

everyone does not know there are people who are suffering and hurting. To place children in such a limited environment when they are emotionally immature will damage their future because it will not help them develop as human beings with character and depth (*fukamino aru ningen*). I believe that is the absolute truth (*zettai shinjitsu dato omou*). I believe it strongly!

Interviewer: I did not mean to doubt your sincerity.

Teacher: To doubt what I am saying is out of the question. If there are people who doubt, I want to say to them, "Why don't you understand? Something must be wrong with you if you have to doubt and cannot accept such a simple truth!"

Then Mr. Tanaka went on to share his experience that led him to believe the importance of mixed-ability instruction as follows:

Let me tell you from my own experience. I think it was my second or third year of teaching. In P.E. class, when I was teaching my students jump box, I realized that some students could do level 4, some could do 5, some could do 6, and some could not even do 4. So I thought it would be efficient if I grouped them together by their ability because every time someone had to do their turn, the level had to be changed to match their ability. It was too much work and waste of time. If I had all the students who could do level 6 in one group, however, they could keep practicing without wasting their time to change the level for other students who could not do level 6. In this way, every student of every level could benefit, for they had more time to practice. Then a teacher, who was especially experienced in teaching P.E., said what I was saying was true, but when I saw how he was teaching his students, he had all kinds of students in every group. I told him that what he was doing was not efficient, and he told me education was not about efficiency! He said, there are all kinds of people in this world. Does a smart person live only among smart people? No, all kinds of people live together, and that is our world/society. To divide students when they are still in elementary school . . . yes, it may be efficient in the classroom, but what does that teach about our world?

If students are not grouped by ability, how do teachers deal ~~with~~ differences in ability? One answer is that they take advantage of the differences by what is called *issei jugyo* (whole-class instruction).

When I asked an eight-year old girl at Tancho Elementary School what words of advice she would give to her American friend who was having trouble at school, she told me:

I would say "Let's study together." I will begin studying with her from the place she got behind. Even though I understand, I will go through with her until she finishes thinking. If she does not understand, I will teach her. If I simply give her answers or if I simply teach her, it will not be good for her.

Whole Class Instruction

In the majority of Japanese classrooms—with the exception of instruction directed at the entrance exams in most high schools and ninth-grade classrooms—all students study a single subject matter together. Moreover, teachers and students collaborate in their effort to understand the problem. It was against this background that the 8-year-old informant responded that other students should help a student who was falling behind until the student understood the problem.

Japanese teachers do not simply lecture to the class, but do so in a manner that everyone is in step with what is being discussed. For the large part, this process of learning as a member of a group is the goal of learning.

Structure of Whole-Class Instruction

The basic procedure of whole class instruction is remarkably similar from one class to another. In a typical Japanese classroom there are from 30 to 45 students. Boys and girls sit on a bench and share one desk in some elementary schools. In other schools, male students are assigned to a row of single desks and female students to another. A large chalk board is placed on the front wall. Many elementary and junior high schools are also equipped with a TV monitor and a video camera which is used to record classroom activities such as displaying answers given by a student to the class. The back wall usually has a smaller bulletin board, which is used for non-academic purposes such as notices of upcoming events, class mottoes, or such informal reminders as "not to catch a cold in the cold weather." The remaining wall space is used for posting students' art work.

The typical instructional procedure of whole class instruction is as follows. The chime rings, and the teacher comes into the classroom. The *niccboku*, the student who is assigned for a day to lead the class's routine tasks announces, "All rise," "Bow," "Be seated." The students follow his or her instructions.

The lesson begins with the review of the previous lesson or problem, or the introduction of a new topic which lasts around 5 minutes. After a transitional statement, the teacher announces the subject matter of the day and explains the basic concepts to the class (5 to 10 minutes). At the end of the explanation, the teacher assigns students seatwork in which they solve practice problems based on the key subject (20 to 25 minutes). Students work individually, in pairs, or in small groups. During the seatwork, the teacher walks around the classroom to check students' progress, and answers students' questions. When the majority of students are finished, several stu-

dents may be asked to put their answers on the chalkboard. Each student then explains the rationale behind the ways he or she solved the problem. Other students evaluate the strengths and weaknesses of a given problem-solving procedure (5 minutes). About 5 minutes before the class ends, the teacher summarizes the major points discussed by the students. The teacher then announces the plans for the next class meeting.

Examples of Whole Class Instruction

The following class offers a vivid example of whole class instruction:

Ms. Sato's third-grade math class. At the upper left corner of the front chalkboard were two framed scripts stating the motto of the class:

> Everyone's Classroom
>
> If there is a good thing to do, all of us will do it together
>
> If there is a thing to be enjoyed, all of us will enjoy it together
>
> If there is a thing that's troubling someone, all of us will think of what to do together
>
> We all make this class better by helping one another
>
> The Goals of Our Class
>
> To be positive/spirited (*genki*) and friendly to all (*akaruku*)
>
> To be cooperative, helpful, and empathetic with each other
>
> To pay attention, listen carefully, so that one can think and speak autonomously
>
> To take initiative and work hard to improve

Also directly above the chalkboard, on five other vertically placed banners, hung the descriptions of the "finger signs" which Ms. Sato's students used to exchange their ideas with one another. (Ms. Sato's class was unusual in using these signs.)

> 1. Agreement: I agree with (name of the classmate) [picture with the pointed forefinger]
>
> 2. Question [picture with the pointed forefinger, middle finger, and third fingers]
>
> 3. Don't understand [picture with closed hand]
>
> 4. Add on: I add on to [name of the classmate]'s answer/opinion [picture with the pointed forefinger and the middle finger]
>
> 5. Opinion: I think (statement of one's own idea) because (reasoning behind this idea) [picture with open hand].

The class had just begun when I stepped into her class. Ms. Sato is in her early thirties. Her instruction is efficient and engaging. A rectangle-shaped banner was already placed on the blackboard, which read, "If you go to buy ___ number of caramels, which are 21 yen each, how much would it cost?" This problem was a review from the last class meeting.

First, Kato-kun (kun is usually added after boys' names to show affection), was asked to stand up and read the banner. Then Ms. Sato announced, "Let's put some numbers in the box." Several students raised their hand, and Ms. Sato called on two of them. The first one said "nine," and the second one, "eight."

Even this simple routine was highly stylized. These two students followed exactly the same procedure when Ms. Sato called their names. They briskly answered, "Hai!" (Yes!) as they stood up from their chairs, gave their answers, and sat down to signal the end of their response.

Ms. Sato then asked the entire class: "When we buy one caramel which costs 21 yen, what equation should we have?" Several students raised their hands, Ms. Sato called on a boy named Togo-kun who stood up and answered, "We have one caramel which costs 21 yen. So it's 21 times one." As Togo-kun was about to sit down, Ms. Sato silently showed him her index finger pointed to the class and reminded him to ask everyone what he or she thought of his answer. Looking a bit embarrassed for having neglected to do this, Togo-kun uttered the set phrase every student used to ask opinions of everyone in the class, *dou desu ka* (What do you think?). Everyone in the class silently raised his or her index finger, indicating they all agreed with Togo-kun's answer.

"Everyone seems to agree with Togo-kun's opinion," Ms. Sato said. Then she asked, "Now is there anyone who thinks they would solve this problem differently?" As she asked the question, she wrote on the chalkboard "1 X 21" (instead of 21 times 1). The equation was not appropriate because it did not follow the way the question was phrased (i.e., If you go buy ___ number of caramels, which are 21 yen each, how much would it cost?). But she wrote it purposely to test how many students understood the concept of writing the equation just as the question was phrased. She asked the class, "Are they the same? I wrote the equation one times twenty one (instead of twenty one times one)? What do you think?" Some students showed the "I agree" signs, others indicated the "I have an opinion" sign.

Then Ms. Sato said, "Not everyone said, 'It's okay.' I wonder why everyone didn't. Okay, Miyaka-san! (san is added after girls' names to show affection; it is also used to be polite)" Miyaka-san said, "We are supposed to figure out by what number we would like to multiply 21. So to say, "multiply one by 21 doesn't sound right." Ms. Sato asked the whole class, "What do you think?" Then another student, Kato-san raised her hand and said, "If we have 21 of something that cost 1 yen, it would be 1 times 21, but if we have the 1 thing that costs 21 yen, it would be 21 times 1." Ms. Sato said, "Very good. If something costs 1 yen and we have 21 of them, then we can say, 1 times 21. But in this case, as Kato Midori-san said, we have only 1 thing that costs 21 yen."

Then, everyone in the class chanted the equation of 21 multiplied by a single digit number as if they were trying to pound this formula into their heads. When Ms. Sato signaled, "One," then the whole class responded, "21 times 1." When Ms. Sato signaled, "Two," the class responded, "Twenty-one times two," and so forth.

At the end of the review exercise, which took about 8 minutes, Ms. Sato finally announced the new topic, "Today, I would like to find out what kinds of numbers you would like to put in the box. We have put 1 through 10 in so far. I would like to see what else you would like to put in it today. So, are there any other numbers that you think you would like to put the box?"

Ms. Sato told me later that she told her students in advance that they were going to cover the topic of two-digit numbers being multiplied by two-digit numbers ending with zero (e.g. 10, 20, etc.). But instead of announcing the day's topic herself, Ms. Sato lets her students state it by having them answer the question, "Are there any other numbers that you think you would like to put in the box?" She thought that by responding to this question, the students were motivated, engaged, and fully involved in the lessons, because it was not the teacher but the students who declared what they wanted to study.

Several students raised their hands and told Ms. Sato that they would like to multiply 21 with the two-digit numbers, 40, 50, 60, 70. Then Ms. Sato announced, "The numbers we have already covered are 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. Now let's compare these numbers and those you said you wanted to study today."

Ms. Sato's class typifies the teaching that exists in Japanese elementary schools with the emphasis on student-centeredness and exploration. Teachers rely on students as the primary dispensers of information, while they assume the role of discussion leader in helping students to discover what the most essential aspects of the information presented are.

Dealing With Individual Differences in Whole Class Instruction

Whole class instruction emphasizes both unity and diversity among students. An appropriate metaphor here may be a mountain with several paths to reach its peak: there are several ways to get there, but all are striving to reach the same goal. As we shall see next, Japanese students are united in their pursuit of a single learning goal, but are also encouraged to discover why each student's method for reaching that goal has merits and demerits of its own. We identified the following pedagogical aspects as contributing to the ways individual differences are managed in whole class instruction.

Cultivating "oneness" of students. Before a teacher asks students to contribute their unique ideas to the class, the teacher makes sure that the whole class is united in a single purpose. The following episode which took place at Shimogawa junior high school illustrates this principle.

While visiting a math class, I noticed that the noise level became quite high as the students talked to each other while solving problems. Later during the interview, I asked the teacher if the noise ever bothered him. He admitted that this class was a little bit too loud, and explained, "Something like that would not have happened if I were lecturing to the whole class." He said that what bothered him more than the noise level in the classroom was when "students were not talking to [him] but to each other." That is:

> Whenever a student speaks to me I consider it a part of classroom activities, even if it is not directly related to my academic objective. When two students begin to talk to each other, they are excluding all the other students. I consider this a problem. But if they are talking to me, I don't consider it a problem because the whole class can participate in their conversation.

When I asked him for an example of this, he told me the following episode. A few days before the interview, two students in his class were talking about the upcoming Valentine's Day. (In Japan, girls are supposed to give candy to the boys they like). He then told the students, "You can talk about whatever you want in my class, but whatever you say here has to be shared with everyone else so that all of us know what's going on."

Focusing on average and below-average students. In whole class instruction, a teacher aims the lesson at an ability level no higher than that of the average student, so that anyone at or below this level can follow it. Japanese teachers know that such instruction does not meet the needs of all students, as a math teacher at Shimogawa

Junior High admitted, "Ideally you should be able to teach students at each level of ability." As with other teachers, he felt however, "that this was simply impossible in our system of whole class instruction."

In order to help below-average students, who have a harder time understanding the instructional material than average students, most teachers start with easier material and gradually move to more advanced materials. A teacher at Chuo Junior High explained this strategy as follows:

> In class, I direct my lectures towards the students who are at the middle. More importantly, I am trying to teach them basics (*kiso*). It is not always easy to teach in a way that the students at the bottom can understand. My goal is to make my lecture understandable for C students, but then F students fall behind. So I first try to teach the very basics so that even the F students can understand. (Teacher, Chuo Junior High)

Sometimes, the average and below-average students understand only part of the lecture. In such cases, the teachers often teach only the basic aspects and then move on to the next topic. The teachers expect those who really want to understand to seek help individually. A teacher at Tancho Elementary School explained this point:

> What I am going to say may sound like a kind of excuse, but there is a course of study in Japan, and as I follow that, I sometimes come to materials which I do not expect my students to comprehend 100 percent. I would of course explain them first, but if the students don't understand, I just touch on them very lightly and move on. I think it is okay for them not to understand certain things at that time. I know they will be able to understand later, so I don't worry about them. For example, the fifth-graders are learning percentages, and because it requires a kind of abstract thinking, they seem to have a hard time understanding it. In such a situation, I believe that I can teach every one of my students the very basic points—I know they can all understand 5 out of 8 is 62.5 percent. If it is the very basic, I believe even the students who first cannot understand will understand when they receive tutorial help (*kobetsu shido*). Our textbooks include applied, complicated materials, too. So if someone asks me whether or not I can teach all of my students to understand things of that advanced level, I would say that I am not trying to do that. I believe if the students acquire the basics well, they will be able to do more complicated materials later on. (Teacher, Tancho Elementary School)

Withholding assistance for advanced students. There is no special program for "gifted" students in regular Japanese schools. By concentrating their level of instruction on average and below-average students, Japanese teachers have much less time and energy to work with more advanced students. For the most part, the advanced students are expected to study on their own, as a science teacher at Meiji High School told me, "I believe it is more important to take care of those who are not

doing well. Those who are doing well can study on their own if I tell them what to study." (Teacher, Meiji High School)

Teachers do not discourage able students from moving ahead on their own even during the classroom exercise. Advanced students often go ahead of others in the classroom, enabling them to spend less time studying at home or studying other subjects:

> So sometimes the teacher will say, "If you are finished with this, go on to the next page." The students who excel most likely go on and even finish the next page. Then the teacher will say, 'The next page will be your homework.' Well, those who excel don't have to worry about it because they are able to finish it in class. In times like that, the students who cannot finish and have to work on it as homework will envy the students who do well. (Student, Hasu Elementary School)

The majority of students and parents support the lack of assistance given to advanced students in the classroom. They understand that the goal of regular classes is to reduce the gap between the advanced and less advanced students, and for teachers to neglect this responsibility would be to discriminate among students on the basis of differences in ability. The reason a student at Tancho Elementary School felt that teachers spend less time with advanced students than with the average and below average students was as follows:

> If the teacher does more for those who are already good at studying, they will continue to excel, and there would be a big difference between them and the students who are not good at studying. However, if the teacher does something special for the students who don't do well, they may be able to improve themselves and our class as a whole will be better. I think that's good. If I were one of the students who could not study well, I would feel very bad to see my teacher paying attention only to the good students. It's favoritism. (Student, Tancho Elementary School)

Overseeing students' rates of progress: Japanese teachers rely on two methods to assess the range of differences in students' mastery: exams and by overseeing students' rates of progress during deskwork. The latter is called ***kikan junshi***—to patrol (***junshi***) while strolling among students' desks (***kikan***)." Several teachers conducted their ***kikan junshi*** as part of "team teaching"; that is, one teacher gave the lecture while the other one walked among students and gave individual help. One teacher at Naka Vocational explained the function of ***kikan junshi***:

> After I finish explaining one such topic, I go around the classroom to see how each student is doing. This way, I get the sense of individual differences. If I pay attention to the entire class, each student would feel that he or she is being neglected. Sometimes I don't have time to pay attention to every student in my

class. In that case, I go to one section of class and another section in another day. (Teacher, Naka Vocational High School)

In an example of the degree to which Japanese teachers are aware of each student's ability level and learning style, a math teacher at Shimogawa Junior High described the nature of differences among his students:

Interviewer: You walked around in the class a lot today. For example, you stopped by one student who was sitting in the front row, and spent a long time there working with him. What kind of student is he?

Teacher: He is way behind most others. He makes problems of his own, but does not feel quite confident enough to solve them. So he was asking me, "I did it this way, teacher, but is it okay?"

Interviewer: So he was a motivated student. But he lacks confidence.

Teacher: That's right. The only reason he's so far behind is that he can only work at things that are interesting to him. He cannot work on problems that are boring for him. I suspect that he had many such experiences in the past.

Interviewer: You stopped at other students. How about the big tall student who was sitting in the middle? You were working with him.

Teacher: He's at the top of the bottom one-third, I'd say. He's very willing to study but gives up easily. He is on a roll when he's solving easy problems, but once he faces more difficult questions, he stops trying all together. He still takes notes, but he stops trying to understand.

Interviewer: Who else did you stop by?

Teacher: You saw me stop by the student who was sitting on the second row on the very right, right next to the hallway. He is one of those who are barely following me in class. I don't think he has quite mastered the multiplication chart yet. Today, I simply had him copy questions and answers from the exercise book. He lacks confidence in solving math problems to such a degree that he does not think even I could help. I'd tell him, "To solve this problem, you have to do this and that," but he goes, "No, teacher, I don't understand." You see, he has his pride (or sense of dignity in front of his classmates), too. That's why he doesn't show much interest when I'm working with the entire class. But when I go to him individually, he asks questions.

Interviewer: You also stopped at this big boy who was working with the girl in front of him.

Teacher: That's right. The boy answered the question given by the girl incorrectly, but didn't know that, so they wanted me to tell them if his answer was correct. Then there were these two on the fifth row. One of them is one of my best students (*sugaku ga honto ni dekiru*). The boy who was working with him was try-

ing to outsmart him, and was trying to come up with a more difficult solution than his, but neither could answer this problem. That's why they called me. There was also this student on the sixth row. He's really good at math but very quiet. He's able to solve problems, but does not seem to be good at making questions or challenging questions that involve application. He can solve about 80 percent of the problems we do in class, but when these problems become more advanced, he can't. That was what was happening today. When I happened to walk by him, he was having trouble solving the problem.

One important goal of ***kikan junshi*** is to provide assistance for individual students having difficulty understanding or solving the assigned problems. As a math teacher at Midori Junior High explained, "I'd go around the class, and if I find someone who's having trouble, I'd offer a hint. I'd give able students smaller hints, and less able students bigger hints." A math teacher at Arata High School also explained:

> I make sure that my students understand my lesson by walking around the classroom and checking the students' notebooks. If I feel they are having a hard time, I explain the problem again and tell them to solve similar problems. When I think at least 80 percent of them understand, I move on to the next lesson. (Teacher, Arata High School)

Solving a problem together. In whole class instruction, all students try to solve or understand a single problem together. The chief purpose of the collective effort is not to find the correct answer. Instead, it is to discuss as many ways to solve a problem as possible, along with the thought processes involved in each. Japanese teachers believe thinking through many ways to solve a problem is the most effective means of arriving at a deeper understanding of a concept.

Ms. Sato's use of hand signals represents perhaps the most systematic effort to integrate different opinions of students in the exploration of a single problem. Also in Mr. Tanaka's class, the whole class was involved in discovering the ways a human egg transformed itself into a fetus for the entire class hour. Mr. Tanaka justified this teaching method as follows:

> There is only one answer to what we were trying to find out today. That is, there is only one answer to questions like "when do a baby's hands and legs develop?" and "when do a baby's eyes develop?" However, children come up with all different kinds of answers. So by comparing their answers, they will be aware of the fact that there are different ways of thinking. Your way of thinking is not the only way, and you have to learn to accept that. By realizing that, they will be led to wonder and question. They would say, "I have been thinking like this, but someone else has a different opinion. Why is that? Maybe I should try to look at it from a different angle. I should think it over. I should investigate." Like today, everyone knew that a baby's life begins with a small egg and grows inside a mother's

> womb, but when I asked them to draw a picture of how the baby develops, they had a hard time. Often children think they know everything, especially those who are interested in studying and might have read some books and feel that they can explain about the development of the fetus on their own. But the reality is that even such students have a hard time if they are asked to draw pictures. Yes, it is true that they have seen it in books, but seeing is different from understanding, and the truth is they have not yet understood even though they thought they did. It is very important to challenge children and break their belief that they know everything. We have to let them question whether or not they really have a complete understanding of that particular subject. Of course, those who don't understand from the beginning are okay, because they, listening to different answers or opinions, will be amazed and fascinated. But the children who think they know and understand must be challenged and stimulated. Then they can become motivated. Otherwise, they would simply say, "Oh, I already know that , so I don't have to study."

Strategically concealing the correct answer: One effective way to help students engage in thinking about various ways to solve a problem is deliberately to conceal the right answer from them. It is believed to be helpful to all students if they hear the variety of explanations that are offered and, in the end, to hear why some were more effective than others. In a math class at Midori, for example, the teacher asked students how many ways there were to unfold a cube. The correct answer is 11. But one of two students who announced his answer to the class said that there were 12 ways. The teacher did not tell the class that this was the wrong answer. Instead, he told the class, "Let's find out if there are indeed 12 ways to unfold the cube as [the student's name] told us." He explained the reason why he did not give away the right answer as follows:

> It's important for students to think. I know that if I explain what's in the textbook, nearly all students in this school will understand. But if I do that, much of their attention and energy will be spent on simply memorizing my explanation. I don't think this is desirable. Instead, I will present them with a question and first ask them to write down whatever comes across their minds, and start from there, so that they actually have to think in order to come up with a solution.

This teacher not only concealed the right answer from his students, he also took advantage of being given the incorrect answer by one student to make other students think. As is the case with most other Japanese teachers, he did not consider it an act of manipulation. Rather, he said it was a very effective way of teaching, and if he did not capitalize on students' errors, he would miss many golden opportunities and end up saying what the textbook was saying.

Japanese teachers prize variations in ability in their classrooms because they naturally provide pedagogically beneficial errors of this type. They do not worry, however, that disclosing students' mistakes to the rest of the class might hurt their self-esteem. Several reasons for this lack of concern were described in our interviews with teachers and apparent in our observation of classrooms. First, Japanese teachers consciously work to build a trusting and non-threatening atmosphere in the classroom. They call on students with wrong answers more often than those with right answers, and the teachers reinforce the students' willingness to participate by announcing that they are making an important contribution to the rest of the class. Teachers also reprimand those who tease students who give wrong answers. Second, Japanese teachers study each student's personality carefully, so that they are generally able to judge which students are more likely to feel hurt than others. They use particular caution when allowing sensitive students to give the wrong answers. Finally, many Japanese teachers simply do not make the association between using a student's wrong answer and damaging the student's self-esteem. Mr. Tanaka, for example, was surprised when I suggested that the use of a wrong answer might have a negative effect on a student's self-esteem. He flatly denied such a possibility:

> No, not at all. I think what we have here is the matter of what we call cognitive disharmony—that is, you think you understood something, but when you put that knowledge with something else you understood, they cause some kind of conflict: You thought you understood, but you did not. There is room for you to learn more so you can find value in studying more. Self-esteem will be damaged? That has nothing to do with this. I have never thought like that!

Some students said that they feel nervous when they are sharing an answer with the whole class without knowing if it is the right answer. Most of them also said, however, that the benefit of learning from sharing their answer overrides such a fear. Three students at Tancho Elementary School, for example, explained the benefit of learning from not immediately knowing the correct answer:

> Student A: Instead of simply giving the answers away, my teacher gives lots of hints. If the students still don't understand, the teacher gives even a bigger hint than he did first—the teacher may tell them to use a certain equation, but also tells the students that it is up to them to complete the problem. I think such a way of teaching is good because we still have a chance to think on our own.
>
> Student B: Sometimes my teacher walks around and checks how each student is doing. At that time, the teacher often says that those who are finished can help their neighbors who are having a hard time. The teacher also goes to the students who don't understand and teaches (gives hints to) them there. I would say everyone can come to understand math by receiving such help from the teacher or classmates.

Interviewer: So the teacher doesn't give you the answers?

Student B: No, if the teacher just gives away the answers, it does not do any good to the students because it is not going to be their own knowledge. In order to let us acquire the ability to think on our own, the teacher gives hints, not answers.

Student C: My teacher is just like [Student B's teacher]—walks around and checks each student; encourages us to help one another and gives hints. I think the way my teacher teaches is good.

In sum, during the elementary and junior high school years, Japanese education encourages some types of individual differences in the classroom. After the end of compulsory education, however, students are sorted by ability between and within schools.

Tracking and High School Education

At the end of junior high school, Japanese children enter the second phase of their socialization in the education system: the non-compulsory high school years. Starting in high school, Japanese students are tracked into various schools with various academic rankings. Students are also tracked by ability or by educational goals into different classes within a school.

Whereas the goal of Japanese elementary and junior high schools is education of the whole person, the central focus of Japanese high schools is career education, either preparing students for higher education or for post-high school employment. This transition from junior high to high school education is epitomized by the way classrooms are structured in the two systems. In elementary and junior high schools, a Japanese class consists of a mixture of students with diverse abilities and varying socioeconomic backgrounds. During these years students are encouraged to discover and share varied ways of solving problems. In high school, where students are sorted into different schools according to their levels of academic achievement, students within each school cover a narrow range of academic ability.

One way to understand how the tracking system works is to study its terminology. To stratify students by entrance exam scores is called *sou-ka*, usually translated as stratification but literally means "layer" (*sou* means "layer," *ka* means "to make"). The distance between one layer (*sou*) to another is called *kakusa* (the gap), and placing one school above another is called *joretsu* (to rank order). Perhaps the most widely used word to describe the stratification system is *wagiri*, which refers to dividing

and stacking students into a single academic totem pole according to their entrance exam scores.

Ability Ranking Inside a School

Many high schools also "lane" students into different tracks, with the most common pattern being the division between the "science" and "liberal arts" tracks. Within each lane, students many be further stratified to different classes on the basis of their *shujukudo*.

By official definition, neither dividing students into lanes or ranking them according to ability is based on students' innate ability. Rather, the former is based on their expressed interests, particularly in relationship to their prospective major in university, while the latter is based on *shujukudo*, which is a measure of how much a student achieved academically in the past. As one high school teacher cautioned us, placing students into lanes was "not about ability but about courses."

In general, the liberal arts track attracts lower-achieving students in math and science, whereas the science track attracts lower-achieving students in Japanese and English. Nevertheless, the very use of the term *shujukudo* minimizes the implication that students are assigned to different classes by their ability. Students in higher tracks seemed more likely to be regarded as *gambatteru*, "working hard," than *atamagaii*, "smart."

The Transition to High School

Teachers tend to be most concerned with the match between students and high school; they believed that the right match produces the greatest chances of a student's succeeding during and after the high school years. Parents and students, on the other hand, were most concerned with the rankings held by the various high schools.

Many junior high school teachers expressed their concern for students' lives during high school and after their graduation, especially in how well they will do in university entrance exams. One teacher summarized his approach to student counseling as "knowing what a student hopes to become in the future and working backward from there." (Teacher, Shimogawa Junior High)

> We start from the student's future plan. The most crucial thing is whether or not a student is planning to go to college. If so, they must go to the academic track. If on the other hand, they do not plan to go to college, but plan to work after graduating from high school, they would probably like to learn practical trade skills.

> So it may be better for them to go to an industrial or commercial school and get a certificate there. That way, they will have a better chance of getting a job after high school because vocational schools also maintain close ties with employers looking for high school graduates . . . If they are going to college, they have to choose between going to a public or a private school . . . . Private schools involve paying tuition and therefore cost more. But many of them are associated with colleges, so most of these high school students are automatically admitted to these universities by recommendation, whereas those who are coming from public high schools have to take regular entrance exams.

Junior high schools also have school-wide programs to help students learn about the high school to which they should apply. These programs are oriented toward educating students and parents about what students may want to do in the future and informing them about the steps they need to take to reach these goals. First, in a "survey project," first-year students ask their parents about their jobs, the tasks and responsibilities involved, and how they like or do not like their own jobs. They share their reports with the class. After this, the homeroom teachers inform their students about the types of jobs that are available, using actual data collected by students, and explain what it is they must do to obtain some of these jobs. Second, in a "general orientation" meeting, parents gather at the school auditorium and are informed of specific procedures involved in the high school entrance exam. They are advised "not to think of school names alone, but to think which school is most appropriate for their children's ability and interests." (Teacher, Shimogawa Junior High) Despite such warning, this teacher lamented:

> some students would apply to schools beyond their ability, solely because of the name of the school. As a result, the students fail to keep up with the high school's standards and in so doing, fail to prepare themselves for university entrance exams. (Teacher, Shimogawa Junior High)

While teachers stress the importance of the right match between a student and the high school selected, parents and students weigh an additional factor very carefully: students should not apply to schools that enroll students below their own level of ability. It was our general impression that many students simply take the homeroom teacher's and counselor's advice about the appropriate schools. However, another important piece of information many students relied upon was the *juku's* knowledge of which school they are capable of being accepted into on the basis of their *hensachi*. Many high school students testified to the accuracy of the *juku's* information, saying that their choice of high school was significantly affected by them.

Attitudes About Tracking

What do Japanese students feel about tracking? Given the enormous effect it will have on their future life, one would expect to hear heated debates about the pros and cons of tracking. This, however, is not the case. Most Japanese students accept the tracking system; they describe the system as being neither good nor bad, but it just is the way it is. An opinion of one high school teacher, who grew up with the current, post-war tracking system, exemplified this attitude:

> Personally, I don't feel like rocking the boat at this stage. I've lived in this society for so long that now I don't think about doing anything about it. Like everyone else, I just say, 'let it be.' (Teacher Meiji High School)

Generally speaking, the Japanese attitude toward issues of education is more practical than ideological, an attitude well exemplified in regard to tracking. Instead of arguing how the tracking system benefits or alienates certain segments of the population, the Japanese emphasize that tracking is the rule that everyone must follow in Japanese society. Even a parent in Hasu Elementary School, a school in a working class neighborhood that is known to be highly progressive, had this to say about tracking:

> Tracking is a good thing because by the time students enter high school, they all should know what they like and what they want to do in the future. So they should go separate ways and not stick together as in elementary school. (Parent, Hasu Elementary School)

As is the case with their teachers and parents, the vast majority of Japanese students have already internalized the necessity and legitimacy of tracking by the time they reach junior high school. Below are two examples:

> Ninth grade student (female): I think it is quite okay. This may sound conflicting to what I said earlier [i.e., students should not be grouped according to ability inside a class], but I think there are students who can study well and those who cannot. So it is good that everyone can go to a high school that suits them. Once you get into a particular level of high school by passing the entrance exams, you will be among the students who are at the same level as you are. That means everyone is standing at the same start line, and you have as much chance as others in the school to excel. It is a new beginning for us, I think, so it's good.
>
> Seventh grade student (female): Of course it is good. Because there are different levels of high school, we can set our goals and work hard toward those goals. And for those who are at the bottom of their grade, I feel exactly the same as Kato-senpai. Comparing themselves to good students, they may always have to

deal with a kind of inferiority complex and lose their willingness to study, but when they go to high school and are with students who are at the same level, they don't have to feel they are the only ones who cannot study well. They may even begin to show more willingness to study.

As we shall see next, it is during the high school years more than during the years of elementary and junior high schools that young Japanese polish their more specialized skills. With diversity reduced to a large degree within the classroom and school, high school students show more focused, career-oriented commitment in their academic pursuits.

High School Instruction

Unlike their elementary and junior high school counterparts, Japanese high school teachers lecture and students listen; students attempt to solve practice problems and teachers explain the ways to solve them. There is little or no extended exploration and discussion of the concepts and ideas that characterize Japanese elementary and junior high school education.

High school instruction in Japan, compared to instruction at earlier grades, focuses more strongly on textbooks and teachers as primary sources of information. As one high school teacher testified: "In high school, we almost always use whole class instruction without group work. When the content is very difficult, students discuss it with their neighbors, but that's as far as our group discussion goes." (Teacher, Kita High School) Lessons from an 11th-grade biology class and a 10th-grade math class provide typical examples.

An Eleventh Grade Biology Class

The topic of this lecture as indicated by the textbook was "Research on Organisms and the Environment: Water." The class involved some student participation as a form of lab work. The class followed the teacher's directions; students listened, did what the teacher said, and expressed few opinions of their own. The class consisted of the following basic segments.

After being greeted by students' bow, Mr. Suzuki, the teacher, introduced the topic of the day by making reference to the water shortage they were facing in the area. He asked students why some areas have restrictions on the use of water while others

do not. He suggested that they should pay attention to the source of water without giving specific answers.

For the next 13 minutes, the class conducted an experiment. The teacher prepared two kinds of water to taste: commercial spring water and tap water. Both types of water were contained in plastic bottles, and students were asked to taste both kinds of water and determine which was which. After this they were to put some chemical in the one they thought was tap water to test whether it really was tap water. Mr. Suzuki instructed the class to compare the color, smell, and the taste of the water.

For the next 30 minutes, the class discussed, under the guidance of the teacher, what they found in the experiment. Mr. Suzuki distributed a handout and a booklet that he prepared himself that explained how drinking water is purified. Then he went over the results of the experiment. The tap water turned blue after the chemicals were added. He explained why it came out blue and how the drinking water had been processed from the source water—he actually obtained some source water that morning to show how it differed from drinking water. Then he went back to the discussion of water restriction in the area. In the school's area, there is little water restriction because a water source is nearby. Using this example, he pointed out how environmental resources can affect our daily lives. He urged the class to go back to the articles that were included in the booklet and to consider the intricate relationship between the convenience of our daily life and the state of the natural environment. With this concluding remark, he introduced the next class's topic and the class ended.

A Tenth Grade Math Class

After the greeting, Mr. Hori reviewed the material covered in the last class: three equations for a line, a circle, and a parabola. Then he announced the topic of the day: corresponding inequalities such as $2x-3y+6>0$. He wrote two more sample questions on the chalkboard, and students wrote them down.

After a few minutes, Mr. Hori demonstrated how to solve the first problem in detail. Then students tried to solve the other two problems in the way the teacher solved the first. During this seatwork, the teacher went around the classroom surveying the students' progress.

When most of the class had finished solving the two problems, Mr. Hori introduced a formula, such as $y>f(x)$, that can be applied to other inequalities. By replacing x with actual numbers, he indicated the y area that is covered by the formula. Then he explained which side of the line (above or below) was indicated by the formula.

Students worked with the inequality by themselves to find out which areas were indicated by inequalities. Later, Mr. Hori asked several students to demonstrate their answers on the board. He went through them and checked key points with yellow chalk. To confirm their answers, especially to assure that they have marked the right side (up or down) of the area, he suggests that they find the value of y when x=0. If the y value is situated in the area they indicated, then they have marked the right area.

Toward the end of the class, Mr. Hori went over the lesson briefly and emphasized several key points to remember. Then, he introduced the content of the next class. He asked if the class had any questions about today's lesson, and ended the class.

Between-class Variation at High School

Some high school classes are not lively; students lack motivation and teachers barely keep them focused on the lecture. Such was the case at the lower-level math class for students in the liberal arts track at Arata. Since these students are not required to take math for their college entrance exams, many understandably lack motivation. This class remained noisy even after I stepped in with the vice principal. Some students in the back of the room continued to have personal conversations unrelated to the teacher's lecture. The teacher simply lectured, with his text book in his hand, and tried to ignore the students' off-task behaviors as much as possible. When the noise level became so high that he could no longer lecture, he shouted to the disruptive students, "Be quiet. Don't talk about useless things!"

The advanced math class at Arata had a totally different atmosphere. All students were totally involved in the lecture; there were no disruptive behaviors; the teacher lectured much of the time; and students took notes and solved practice problems quietly. Other high school classes fall somewhere between these two classes in terms of the level of student attention and the cooperative spirit that characterize the teacher and students.

The High School Experience

The experiences in high school reflect the stratification that occurs on entry to high school. At this level, Japanese students have more freedom to explore individual styles, but individual expression is still tightly linked with school atmosphere.

Autonomy and Freedom in the High Track School

Meiji is not unique among many high-level schools in its outward lack of emphasis on academic matters. Academic high schools with a strong academic tradition can downplay academics because, as one teacher explained: "In good schools, students study without being told, so we don't have to push them to study." (Teacher, Meiji High School) Students in the high track schools are granted a great deal of freedom and autonomy but are encouraged to participate in non-academic experiences that "build character."

In accordance with its motto of "balanced education," for example, Meiji encourages students simply to enjoy their youth. At the top of the school catalogue, one sees a message, boldly painted with a Japanese brush, *seishun o ikiru*, "Live your youthful days!" Meiji students do enjoy their school life: one survey indicated Meiji as the most popular school in Naka city. Not surprisingly, one teacher described Meiji students as "growing up straight and tall" (*suku suku to sodatte iru*) as the Japanese words "*suku suku*" here indicate plants growing up with proper nourishment and adequate protection.

Paternalism and Apprenticeship in a Low Track School

Schools in the lower tracks such as Naka Vocational thrive on the non-academic, the "wet" side of education to keep students in school (Lewis, 1996). (The English word "wet" is used in Japanese to indicate the warm and affectionate—as opposed to impersonal and rational—individual characters and human relationships). More specifically, we found teachers at Naka to be paternalistic, and students, as the Japanese say, *sunao*, (cooperative in spirit and obedient in action).

Naka teachers take seriously their role of helping students to graduate. This commitment on the part of teachers is reminiscent of the traditional master-apprentice relationship. One way the teachers assume this responsibility is to play the "big-brother" role of benevolent superordinate. Teachers make sure that they stand "above" students, but at the same time they are remarkably sensitive to the emotional, as well as the academic, needs of their students.

The type of language Naka Vocational teachers use is often coarse and earthy. During my visit to Mr. S's math class, I was reminded of a father-like figure in a traditional Japanese family who is known to admonish his children harshly should they act improperly in front of a guest (e.g., forgetting to use polite language). At the beginning of the class, he announced to his class, "Listen up boys! We have a guest who came

all the way from the United States. Let's work together so that we can show him the best in us!" None of the students appeared to feel that Mr. S was exaggerating the importance of the matter since all students conducted themselves extremely well.

Much of Naka teachers' teaching philosophy and practice evolve around being an exemplary *senpai* (teacher and mentor). A science teacher indicated:

> If students are motivated to learn, if they want to learn because they want to get a good job in the future and so on, I would love to teach them as a *senpai*. Because teaching is a human endeavor, you must have this type of relationship to begin with. Otherwise you cannot teach. I'm not teaching to a thing, therefore, human relationships play a very important role here. For one, I try not to hurt my students' feelings because when their feelings are hurt they become too reluctant and react negatively to studying.

Being an effective Naka Vocational teacher, however, requires more than being a morally exemplary and emotionally nurturing figure: teachers have to demonstrate their care for students by making sure that they graduate. One math teacher explained:

> This year, I am not a homeroom teacher, but from a point of a homeroom teacher, it is very sad to see students leaving or dropping out. Even though I am not a homeroom teacher, I think I will regret if I let the students quit school without offering any help. If I try helping them, and still find that they, themselves, do not want to study, then I feel I can succumb to such a regrettable outcome—that is, students leaving Naka. There may be students who are actually seeking my help, but because they do not know how to express their need, I may not notice them. I believe that students who really want to graduate from high school will work hard, and for those students I feel obligated to do something. So instead of waiting for the students to come to me, I go to them and tell them to stay after school.

Students do believe that teachers care about them and are both willing and capable of helping them. In the group interview at Naka Vocational, the first student said their teachers were "always thinking about each student." The second student responded by saying, "They are enthusiastic. They give us good advice and positive comments like 'Keep up your good work! You can go to college.' Such words make a world of difference to me." The third student also praised his teachers, saying: "Many teachers at this school seem willing to walk miles in my shoes. They put themselves to our level almost to the point of being my friends." This and other interviews with Naka Vocational students suggest that they are grateful to have teachers who care, rather than being resentful about being in low-track vocational schools. While students' levels of academic achievement may be considerably lower than those in higher track schools such as Meiji and Arata, the students displayed remarkable willingness and desire to succeed in a non-academic high school.

"Mid-slice Crisis" at the Middle Track School

Differences in the level of ability among students appeared much higher in the mid-level high school than among their high and low track counterparts. Arata epitomizes this "mid-slice" school phenomenon—as its school counselor explained:

> This school is about the average in this prefecture. Schools that are placed in the middle (academic level) have students of different academic levels, and thus the individual differences are very noticeable. Schools that are at the top, as well as bottom, tend to have pretty much the same level of students. Math is the subject in which such individual differences become most apparent. So we are dividing our students into different classes according to *shujukudo*, because there are students who need to study math for college entrance exams and those who don't. We do such grouping for every major subject, but especially for math and English.

Being a newly-founded school in an area recently converted from an industrial neighborhood to a residential area, Arata epitomizes what it takes to become a *shinsetsu ko* (newly-built school). Being only 10 years old, Arata has no history to build upon in comparison to Meiji. It is in the process of making one and for most new schools like Arata, the reputation improves as the number of students they send to prestigious universities increases. The school's activities appear to be singularly focused on this goal; the one and only motto of this school is *nobasu* ("to improve").

Arata's counselor emphasized the value of having divergent tracks for students:

> Being well rounded will no longer mean much in Japan. It will stand in the way of students expressing their strengths. The students who are good at math should strengthen that ability, and those who are not good at math should do the same in other subjects.

At a teachers' meeting at Arata, however, teachers openly discussed their ambivalent feelings toward ability grouping. Clearly, ability grouping interferes with their sense of "fairness" for students. One teacher complained that the term *shujukudo* itself is a vague concept: "Teachers are told to divide students by *shujukudo*. But is *shujukudo* their exam scores, grades, willingness to study? I'm very confused here. Even in classes grouped by ability, we still have ability differences because some students study harder than others." The second teacher responded by saying, "In order to group students by ability, we rely on our regular exams. But when the top classes and the bottom classes are covering totally different subjects, we have no way of comparing the students' ability because they can't take an exam on the same subject." All teachers agreed in the end that there is not much a new school such as Arata can do about tracking, because in order to survive it has to attract students of high quality, and to do so, it has to send more and more students to good universi-

ties. The teachers acknowledged that it is difficult to handle lower-level students who have little chance of getting into prestigious universities.

Societal Responses to the Stratification System

The vast majority of the Japanese criticize the system of entrance examinations. They argue that the current "slicing (*wagiri*)" system measures human worth in terms of scores (*hensachi*) and ignores the unique ability and potential of each student. The Ministry of Education conducted major reforms in 1989 aimed at easing the examination race (*juken senso*) by the implementation of "individualized" education. Overall, we found parents and students liked the idea of the Ministry's reform. In the mean time, they are reluctant to go along with it because doing so reduces the chances of students going to better universities.

Ministry of Education's Reform

The reform was designed to give secondary students more flexibility and long-term opportunities (*shogai kyoiku*) for seeking or pursuing higher education. There are roughly three areas to which this reform is addressed: high school education, "examination wars," and continuing education. First, the ministry has suggested that the examination process is too rigid and needs to be more flexible to account for students' individual differences. Second, they feel that the current "examination war" (*juken senso*) encourages students of all levels to study in order to get high exam scores, while neglecting their individuality and non-academic strengths (e.g., artistic originality) and weaknesses (e.g., social immaturity). Instead, the Ministry has discussed the possibility of easing the examination race by adopting multiple and even non-academic means of evaluating students' abilities such as putting more weight on GPA, interviews, essays, or extracurricular activities. Finally, the current system gives few chances to high school dropouts and to adults past the college graduation age to continue their education. The Ministry has now encouraged a life-long opportunities program designed to give people of all ages and all academic backgrounds opportunities to continue education or re-enter schools.

Parents' and Students' Responses to the Reform

Japanese parents and students find it ideologically compelling to criticize their current education system, but at the same time they find it personally and pragmatically unwise to give up competing, lest they be left behind in the examination race. As a

result, parents and students hold on to the perception that entering highly ranked high schools and universities, regardless of the content and quality of the education provided, offers students the best chances for success in life. For example, a mother whose daughter just entered a university challenged the criticism that many students would go to colleges for the school name alone:

> Mother: Once we had an exchange student from China who went to a Japanese university. He said, "The Japanese are funny people. They study so hard to get into university. But once they do, they completely goof off." Looking at my own daughter, I felt how true that was.
>
> Interviewer: How do you feel about that?
>
> Mother: Well, I say, I am going to send my child to college anyway.
>
> Interviewer: Why do you think so?
>
> Mother: When a girl is trying to get married, the first thing people ask is her level of education. They ask, "Was it a 4-year college? Women's college? Which college?" and so forth. I know it's parental ego or vanity—you can call it whatever you want to. But that's just how I feel. I feel it's my responsibility to send my child to a university that she won't be embarrassed by when she mentions its name. My daughter said she wanted to major in religious studies at college. When we (parents) asked why, she said she didn't know. That's okay by us. I'm not embarrassed to admit that we want her to get the diploma from that college and bring back the name of the school with her when she graduates.

Supplementary Education

Juku are designed to complement the Japanese public school system, as an administrator of one of Japan's largest *jukus* explained. He boasted that his company had what it takes to replace regular schools with its ample money and teaching staff. "But if we do that," he explained, "we no longer are *juku*. We become a regular school and have to compete with other *juku*. To be a *juku*, you have to do what it is meant to do—support regular schools."

As his remark indicates, Japanese schools produce a large number of students who find instruction in regular schools too easy, difficult, or not tailored to their individual needs. For them, there are two major forms of supplementary education: *juku* and supplementary classes called *hoshu* within regular schools.

Hoshu

Japanese schools often provide some form of supplementary classes. By definition, *hoshu* are given by regular teachers and typically are offered in the morning before the regular classes or after school. Most *hoshu* are free, and whoever wants to attend can attend. *Hoshu* take somewhat different forms in elementary, middle, and high schools.

Hoshu plays a very minimal role during elementary school in dealing with differences in students' rate of progress. Teachers try to provide help to children having difficulties as much as possible in the regular classroom. Elementary school teachers are also reluctant to offer *hoshu* for fear that the extra emphasis placed on academics hampers the basic goal of educating the whole person. As one teacher explained: "I don't want to give *hoshu*, if possible, because I want children to go home and play after school." The same teacher also explained: "I make sure that I'm available to students. I tell my students, 'if you want to see me after school, you can,' but I don't make that mandatory."

Junior high school teachers rely much more heavily on *hoshu*. The more advanced course materials and the need to prepare the third-year students for entrance exams necessitate this change. In junior high school, *hoshu* are given after school in a teacher's room immediately before or after regularly scheduled exams (i.e., mid-term and final). Attendance is voluntary before the exam, and mandatory after the exam for those who failed it.

Most *hoshu* classes are not divided by ability. As a math teacher in Midori explained, the diversity does not always pose a problem because "good students know what they don't know and how to ask questions. Most of them leave quickly, and I'm left with slower students with whom I spend a lot of time." Although teachers require students who fail an exam to attend *hoshu*, they cover material students can easily understand and then use that material in subsequent make-up exams so that these students can pass the course.

In academic high schools, on the other hand, *hoshu* are geared toward both those who are failing and those who wish to do well in college entrance exams. In the case of vocational schools, they are important for job certification exams. At Naka Vocational, for example, teachers often ask failing students to see them and receive *hoshu* because "many students do not come unless they are told to." (Teacher, Naka Vocational High School) At Meiji, *hoshu* are mandatory for anyone who scores below half the average score in any given exam in a course. Should these students fail the subsequent makeup exams, which are based on the materials covered in *hoshu* and

are slightly easier than regular exams, they must repeat the grade. It is very rare, but sometimes a few students do repeat a grade at Meiji.

In addition, all high schools in our sample have school wide *boshu* directed toward college entrance or job certificate exams. At Naka Tech, anyone who plans to take a certificate exam can ask a teacher to give him a *boshu*. School wide *boshu* at Arata probably represent the most common pattern. During the first year, *boshu* are offered in the major subject areas of math, science, Japanese, and English. During the second year, separate classes are offered for the liberal arts and science majors. In each *boshu* class, students are divided by ability on the basis of teachers' evaluations of students' performances on classroom exams. Summer *boshu* are also offered to second- and third-year students. The course covers major subject areas of college entrance exams such as English, mathematics, and science. Because tuition is low many students take advantage of these courses.

Juku

As noted in other chapters, there is a wide range of *juku* that meet varied needs. These include fast-track, *shingaku juku* and supplementary, remedial *boshu juku*.

Kawai Juku. Kawai is a multi-functional school with about 40,000 students going to its post-high school preparatory school (*yobiko*) division nationwide, 60,000 to the high school division, 10,000 to the middle and elementary school divisions, and 10,000 to the vocational and preschool divisions. As indicated by these numbers, the main patrons of a large-scale *juku* such as Kawai are high school students. Most of them are either top students from average schools or students from top schools. These students feel that instruction given at their regular schools is not adequately preparing them for the college entrance exams.

The Kawai *Juku* of Naka City is a large, modern, bright building that appears more like a popular shopping mall than a typical Japanese school. The students are dressed in neat school clothes and appear to be focused on studying. Kawai *Juku* is a preparatory school (*shingaku juku*) for able students from all areas of Naka City who are planning to take college entrance examinations. Seeing these teens conversing with laughter in the hallways gives no image of a *juku* being a hangout for "bookworms."

Large-scale *juku* like Kawai are perhaps the only academic institutions in Japan that are both designed to and capable of providing support for fast-track students whose academic potential is not met by regular schools.

One administrator of Kawai *juku* told me, for example, what academic success entails in Japan and why admission to an outstanding university is so important:

> What education gives is an insurance policy. Going to Tokyo University is like having paid the largest possible premium in life. No matter what happens in your life, chances are you will lead a disaster-free life. But this doesn't mean you are going to make your wildest dreams come true.

The administrator acknowledged that there was no room for a wild card in Japan. To the Japanese, providing special treatment to an individual neglects the Japanese reality, in which being different from others often entails being left out, or worse still, being marginalized by the mainstream. The administrator emphasized that the role of *shingaku juku* is not to produce "wild cards," but to prepare fast-track, college-bound students to get into nationally ranked universities.

Sakura Juku. Sakura *Juku* in Naka City is a typical *shijuku*, small-scale, "mom and pop" *juku*. Unlike Kawai, Sakura's primary function is to help elementary and junior high school students who are either failing to or hoping to keep up with regular class instruction.

Mr. Sakura, who is in his late thirties, started to tutor several students while he was a graduate student. After graduation, he officially founded this operation as a private *juku*. Currently, eight college students work as teachers. Students range from the 4th to 12th grades, with the highest concentration being junior high school students, particularly those preparing for high school entrance exams. This pattern closely resembles the general pattern of *juku* attendance by elementary and junior high school students.

There is usually only one class for each grade level. A junior high school-level class usually consists of about thirty students; elementary and high school classes, somewhere between 10 and 20 students. At the elementary and junior school levels, students receive classroom instruction much like that which they receive in regular schools. The teachers use supplementary exercise books published by private companies. The junior high school students are especially concerned about doing well on mid-terms and finals.

Chances for successfully entering a college or university are improved by knowing what one needs to study in order to pass the entrance exam for a specific university. A large *juku* such as Kawai specializes in such service, but a private *juku* such as Sakura cannot provide such information. High school students who plan to apply to top universities, therefore, are normally advised to quit Sakura and go to a larger *juku* that specializes in preparing students for entrance exams. Some students, how-

ever, are either unwilling to go a larger *juku* or are unable to afford it. The few who stay form one class for each grade. Several teachers are assigned to each high school subject, so that each student can receive individual instruction. A Sakura teacher told me this setting is a clever alternative to having a tutor.

Why go to juku? Talking with parents, students, and teachers in regular schools and *juku*, one learns that the primary reason students go to *juku* in Japan is not to attain individual excellence or high levels of achievement, but to keep up with or get ahead of their peers both socially and academically.

The list of reasons why students go to an academic *juku* given by a long-time teacher at Sakura, who is now a faculty member in a department of educational psychology in a major national university, underscores such a peer-based tendency. For elementary school students he cited three main reasons for going to an academic *juku*: (a) to prepare for entrance exams to elite junior high schools, (b) to give the child whose siblings are attending *juku* fair treatment, and (c) to help a student keep up in regular school.

The former *juku* teacher said that for a junior high school student, this picture changes dramatically. He noted that the majority of those who go to *juku* say they go simply because their friends are going. Going to *juku* provides them with an opportunity to spend time with their peers. One sign of this he said, is that even after classes are over in the evening many students do not leave the *juku*. The second reason he suggested is that parents want their children to obtain better grades at school. When the news spreads in a neighborhood that certain students improved their grades by going to a particular *juku*, many parents decide to send their children to that *juku*. The final reason the teacher listed as to why junior high school students go to *juku* was that the parents were disappointed by the teaching that goes on in regular classrooms. He explained, "Since regular schools conduct whole class instruction, when a certain student begins to lower the morale of a class, the whole class suffers. At other times, students find they are incompatible with their teacher. In such cases, *juku* offer them another setting in which they can avoid such problems."

The overall distribution of students attending *juku* changes across age groups. Many elementary level students attend non-academic type *juku*, and *juku* focused on academics become more prevalent at the junior high and high school levels as students prepare for high school and college entrance exams. However, at the high school level the number of students aspiring to attend college greatly reduces the pool of potential *juku* students. Therefore, looking at all of the *juku*, there are fewer high school students than their elementary and junior high school counterparts attending *juku*. Students said that studying in high school becomes much more difficult and out-of-school study requires a good deal of time. As a result, many students simply do

not have time to go to *juku*. Those who do go to *juku*, tend to be divided into those who are either having serious problems keeping up with class or those who are preparing for college entrance exams.

The role of juku in dealing with differences in students' ability. At the risk of oversimplification, one can state that it is *juku*, not regular schools, which both systematically and effectively try to deal with differences in students' abilities. Many teachers say regular schools are sufficient for most students to accomplish their goals, but Japanese parents and students claim that students who are either at the bottom or top of the class have to go to *juku* in order to receive appropriate levels of instruction. For example, students who aspire to go to an elite junior high school have no choice but to turn to *juku*, rather than to their teachers in regular schools, for help. One mother at Hasu Elementary testified:

> My older child expressed her desire to go to a private junior high school when she was in the fifth grade. Today, in order to go to private junior high schools, children have to study things that are far more advanced than those taught at school. So we decided to send our child to *juku*. I know that the parents should really help the children at that point, but when we looked at the lessons our daughter brought home, we could not help her with math. We were still able to offer some help in Japanese, but not math . . . So we had to have somebody's help. As a result, our daughter passed the entrance exam to the very school she wanted to enter. Because her dream came true, looking back on the past 2 years, she feels it was good that she went to *juku*. However, during those 2 years, she, being busy, always looked anxious and under stress. I could tell even from the language she was using, that she needed more time to relax.

It is important to realize that most Japanese parents and students neither criticize regular schools for their unwillingness to deal with ability differences, nor praise *juku* for attempting to meet the students' individual needs. Rather, they think both a regular school and a *juku* are needed if the student is to derive the maximum benefits out of the current Japanese system. One such example of this differentiation comes from the results of a survey study conducted in Chiba, part of the Tokyo metropolitan area. Nearly 80 percent of elementary and junior high school students responded that they considered homework given at regular schools more important than that given in *juku* (Kudomi, 1993). The majority indicated that they approve of ability grouping at *juku* "because the grouping makes the right adjustment for my own ability level," but not at regular schools, where they considered the grouping "a sign of discrimination." This paradoxical situation occurs because of the different goals of *juku* and regular classes. Social interaction and the development of the individual are goals in regular schools. *Juku*, on the other hand, seek only to develop the students' skills, and grouping by ability often makes it easier for the teacher to accomplish this goal.

While the majority of respondents indicated that instruction given at *juku* "prepares them more effectively" for entrance exams than those given in regular schools, they also indicated that they respect teachers in regular schools more than those in *juku*, because the former understand them better than the latter. Clearly, Japanese parents and students rely on regular schools for the basic materials to be covered for a given grade, and equally importantly, for the environment in which everyone is treated equally regardless of academic ability.

Special Education

Two kinds of schools exist for mentally or physically handicapped children in Japan: special education schools and special education classes within regular schools for elementary and junior high school children.

The basic types of special education schools are those for visually impaired, hearing impaired, and for children and adolescents with mental retardation, physical handicaps, and other conditions of infirmity. Special education classes, on the other hand, enroll students with less severe physical and mental handicaps, such as mild visual or hearing impairment, mental retardation, physical handicap, medical infirmity, language disorder, and emotional disorder (Monbusho, 1991).

Around 1 percent of the 14 million children of compulsory education age with physical and mental disabilities are receiving compulsory education in either special education schools or classes (Monbusho, 1994, p. 70). Of these children, 42 percent are enrolled in special schools, and 58 percent are enrolled in special education classes in regular schools.

Thus almost all Japanese children, including the severely disabled, attend some type of school, with only "about 1,000 children (0.01 percent of the compulsory education age population) allowed postponement of or exemption from the compulsory schooling" (Monbusho, 1994, p. 70).

Who Goes to a Special School or Class?

The parents of a handicapped child ultimately decide the school or class in which the child will be enrolled. No laws mandate that certain types of handicapped students will enroll in a special school, special class, or regular class. Neither the teachers nor the city's Education Center possess authority to send handicapped children to a special education school or class. The primary function of the Center is to help

parents and teachers of handicapped students decide which school is most appropriate for them.

The decision, however, is rarely made solely on the basis of parental judgment. Although it is difficult to derive a general pattern of how a child is referred to a special education school or class, the special education teacher at Tancho Elementary mapped out the typical road many handicapped children travel before being enrolled in a special education school or class:

> Most disabled children get identified before entering preschool. Parents receive the notice from the city government to bring their child for a check up at age 6 months, 18 months, and 3 years. In case of rather severely handicapped children, they can be picked up easily by the 6 month check-up because their heads do not sit stably on the neck. If a child's neck is not stable at 6 months, a potentially severe disability is suspected, so the child with this condition is referred to a doctor immediately. In the 18-month check-up, most children are expected to walk, so if a child is unable to walk at this time, he or she is referred to a doctor. Incidentally, most autistic children pass both the 6-month and 18-month check ups. Autism is usually identified at the 3 year check-up when children are asked, for example, "What is this?" when shown a book. If a child does not respond at all, or try to avoid the examiner all together, autism is suspected and they are referred to a pediatrician. After being referred to and seeing a doctor, parents who still think that their child may be slower than others must make a decision if they put the child into a regular preschool or a special school for disabled children. Children who enter such special schools usually advance to either a regular school with a class for disabled children or a school that's primarily for disabled children (*yogo gakkou*). When parents have a hard time deciding, they sometimes go to the Education Center and get the opinions of staff members.

Some children are so severely handicapped that they are left with few options but to go to a special education school. One teacher explained, "Such children typically have very low IQs, cannot be toilet trained, and in case of autistic children, cannot stay still for even a moment. If a child requires a teacher's constant, one-on-one attention, and if this keeps the teacher from paying attention to any other child in a class, the child is often considered to have a handicap severe enough to be referred to a special school."

Dealing With Students With Special Needs

Special education teachers seem to interact with special education students more casually and intimately than most teachers do with healthier children. Attending a special education class is a particularly "homey" experience. Normally, a special education class consists of five to seven students at most. Almost all academically ori-

ented instruction is informal. For example, in one math class I attended, students were given real money and went to the teacher to buy various snacks that she sold. In another such class, students bowled and counted the number of pins they knocked down. Each student received individual attention. In one elementary-level class, each student owned certain sections of the classroom. A girl named Kako-chan, for example, was both curious and nervous about the sudden visit by the vice principal and this strange adult. Upon our visit, she retreated to her own "spot." Then the teacher remarked, "Fine, Kako-chan. That's your place isn't it? But you don't have to hide in there. Everything is fine."

Japanese teachers expressed the belief that individual attention should be given at home by mothers, but in school, children should learn to control such "selfish" impulses. Clearly such restrictions are lifted in Japanese special education classes. Ms. K likened her students to her own child:

> I don't think my students are 'special' as you suggest. Maybe there are slower than others. When I was raising my own children, I noticed behaviors which look exactly like that of my autistic students. The difference is that the autistic student is stuck at that stage of development. So I don't see them (her own child and her autistic student) being that different.

Problems Facing Special Education Teachers

Most teachers in special education classes expressed ambivalent feelings toward the general cultural and academic climate in which special education is embedded. For special education students, whose identities are shaped by being different, mainstream Japanese education stands as both the goal to be accomplished and as the obstacle to be removed.

Ms. K, for example, told me about her dilemma in the school's "sports day" (*undo kai*). As in any athletic events, all students must follow rules by which they compete. In a short distance race, for instance, all runners must line up at the starting line. "In Japanese schools," she said, "when they say 'line up,' you really have to line up. But there is no way that my students can do that. So they inevitably stick out." She said that she felt torn because on the one hand, she wanted her students to do exactly as others so that they did not feel embarrassed. At the same time, she felt "this is not what education is all about. I thought handicapped students should be free to do what they can do. Of course, they have to follow rules, too. But making a perfect line is not such an important rule."

Ms. K and other special education teachers agreed that what they hope most for their children is that the society will become more understanding of their students'

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"need" to be different. They acknowledge that the majority of handicapped students will never achieve the level of independence as adults as their non-handicapped counterparts. "There will always be times when they have to ask for help," Ms. K said. To both prepare handicapped students to seek help and non-handicapped students to offer it, the teachers said it was essential that the two groups spend as much time together as possible. Specifically, Ms. K told me:

> I would like to have regular students see the ways I interact with my students as much as possible. In fact, we have a program within this school where my students and I go visit regular classrooms. Had the regular students not seen the way I interact with my students, many of them would opt to help my students completely, expecting that my students would not be able to do anything on their own. But this shouldn't be so. My fourth-grade student had everything taken care of before coming to this school by his preschool teachers. I changed all that when she came to my class. I simply watched her when she was doing what she could do, and helped her only when she needed help.

Japanese teachers, students, and parents appeared to be generally in favor of mainstreaming. One Hasu parent even maintained that it was necessary for non-handicapped to be given opportunities to mingle with their handicapped peers because "Society cannot exist without those people, and to learn that when children are young is very important."

In summary, special education is only beginning to receive pubic attention in Japan. Clearly, the notion of group life both hinders and helps children with special needs: it hinders to the degree that it demands conformity and helps so far as it encourages an acceptance of diversity.

Conclusion

This chapter began with the question of how the Japanese treat individual differences among students. Several culture-specific assumptions and ideas were suggested concerning how individual differences are created, maintained, and dealt with.

First of all, Japanese do not consider individual differences in abilities to be primarily given at birth, but rather acquired through individual effort and family background. From the beginning of their formal education, Japanese children are taught to see themselves as equals, as part of a group. From preschool and throughout much of elementary schooling, children receive what Japanese educators call "whole person education." The idea behind "whole person education" is that children should be edu-

cated in every dimension of their personhood, including their social, emotional, moral, physical, and intellectual capacities. Japanese elementary schools place so much emphasis on the group, and the individual as part of the group, that teaching and learning at this level can not be taken out of an interpersonal context.

Junior high school years in Japan, however, are a time of turbulent transition, a time when the egalitarian education that characterized the elementary school years merges with the new forces of academic competition. It is in junior high school that students become concerned with competing with their peers in the entrance exams that will determine their place in a high school system with various levels of academic rigor and prestige.

This competition is carried over to high school, the time of preparation for university study or direct entry into adult Japanese society. During the high school years, much emphasis is placed on social life within the school while, at the same time, students are being trained to compete as individuals for the university entrance exams. Japanese high schools, stratified by their academic levels, mirror the occupational levels of competition in Japanese society, where emphasis is placed on learning to balance individual competition with being a productive part of a group.

In Japan, competition and egalitarianism often go hand in hand. The two behaviors produce some conflicts in students' lives, but Japanese students and parents generally regard the two elements as being equally necessary. Competition, which outlines differences between individuals, is considered to be necessary because it gives students the ticket to higher education and opportunities for prestigious and well-paying employment. Egalitarianism continues to be important in Japan in part as a reaction to earlier periods when education was available only to elite groups in society.

Virtually all Japanese students, parents, and teachers appear to be aware of the simple formula that the more time an individual student spends studying, the better their chances will be for entering a good school, getting a good job, and becoming members of the middle class. The crucial requirement is the possession of a high school diploma; regardless of whether one is planning to go to college or not, "doing one's time" in high school is an important variable to social acceptance.

Chapter 4

The Role of School in Japanese Adolescents' Lives

By: Gerald LeTendre

Toru Kobayashi is an eighth-grade student in one of Naka City's junior high schools. He lives in a small apartment with his parents and sister, a short walk from a nearby bus and train station. Now that Toru and his sister are in school, they occupy the two small bedrooms in the apartment while Toru's parents convert the living room into their bedroom at night by rolling out a futon. Both Toru and his sister sleep in beds, and both have a small desk, lamp, and bookshelf in their room.

The family rarely eats breakfast or dinner together. Toru's father and sister are up early because they both have a long commute to school and work, so Toru and his mother enjoy a more leisurely breakfast. At 8:00 a.m. on most mornings, Toru leaves the house, dressed in his school uniform, to make his way to the bus stop. The bus passes coffee shops, convenience stores and a pachinko parlor before it gets to the stop at his school, giving him a few minutes to chat with friends before the school day starts at 8:30.

Toru's friends are all dressed in the same black uniform, while the girls at his school wear navy skirts and a blouse with a dark red scarf. Groups of boys and girls laugh and talk as they pour into the student entrance where they remove their street shoes and put on school slippers. As they pad down the hall to their homeroom, Toru and two of his friends pantomime kick-boxing moves they saw in a recent martial arts picture.

At 8:30 Toru's class, 2-7, has its morning homeroom meeting. "2-7" stands for the seventh class in the second year of junior high school, and the class motto, which hangs above the chalkboard written in English, is "Independent Spirit." The homeroom teacher, Mrs. Ibuchi, enters and the students bow and listen to the announcements from the teacher and the students whose turn it is that week to make announcements.

After a five-minute break, the math teacher, Mr. Nomura enters, and the class again bows and gives a formal greeting. Mr. Nomura goes right to work and writes down an equation that the class had been working on the previous day. Immediately he asks for answers. Jokingly, Mr. Nomura says that a good night's sleep should have stimulated their brains. Students begin to raise their hands and make suggestions. Mr. Nomura responds to each answer, relating it back to some of the material covered the previous day.

Second period is English with Mrs. Hamagawa. Although Toru's sister loves English, Toru finds it frustrating. Today the students spend most of the day reading out loud in sequence to correct their pronunciation. Mrs. Hamagawa reminds them at the end of class to turn in a draft of their self-introduction as the foreign English teacher, a young American, will visit the class in two weeks. Although Toru dislikes English, he is very excited about talking with a Westerner and wonders what he should say in his introduction.

By 11:30 Toru's stomach is grumbling and he is beginning to have trouble concentrating. At 12:10 the students who are on duty in the kitchen bring lunch to the classroom. Mrs. Ibuchi brings her lunch into the room and eats while chatting with some students and grading papers for her afternoon class.

The afternoon classes seem to drag by, but at 3:10, after sweeping the classroom, Toru heads to basketball club. Four nights a week Toru stays to practice with his team until 5:30. The students, directed by the captain, practice their drills over and over. Toward the end of the period they have a short match. On Wednesday night he leaves early to go to his English lessons.

Toru gets home before 6:00, watches a little TV, and eats some snacks his mother has prepared. He then leaves for his review cram school (*juku*), which meets three nights a week. Next year he will transfer to an exam prep *juku* like the one his sister goes to. This *juku* is across town, nearly an hour by bus and subway, so Toru will have to quit basketball.

Toru gets home shortly after 8:30. His father is home and they chat briefly about school and the exhibition soccer games that will be on TV that weekend. Toru eats dinner his mother has prepared and takes his turn in the bath. Sitting in front of the TV with his parents, he watches TV and scribbles a bit of his self-introduction. Around 11:00 Toru goes to his room and does a few math problems. By 11:30 he has picked up a comic book and then lays on his bed where he falls asleep.

Introduction

During the early part of 1995, I spent three and a half months interviewing students, teachers, and parents in Japan's public junior high and high schools. During this time, I interviewed 20 students, 14 parents (only 2 fathers), and 25 teachers. I conducted 24 observations of student events and daily school activities (e.g., cleaning period, club practice time, teacher's meetings, and graduation ceremonies). The interviews were all conducted at the schools and ranged in length from 30 minutes to 90 minutes. The duration of the observations ranged from 20 minutes to over 120 minutes.

Most of the students interviewed were in the 7th, 8th, 10th or 11th grades. Because junior high school and high school student must pass entrance exams to move on to the next level of education, 9th- and 12th-graders follow a very tight schedule of study, and the school administrators were reluctant to allow them to be interviewed. I was able to speak to some students in their final years of schooling during informal discussions, which usually occurred while I observed club practice after school.

The staff at each school selected the students and parents that I interviewed. The students, generally equal numbers of boys and girls, represented those whose academic and extracurricular performance was average or above. The parents I interviewed were usually PTA members and often held an office in the PTA. The teachers ranged from one young woman in her first year of teaching to veterans with nearly 30 years of experience. Because of my interest in adolescent lives, I requested, and was usually granted, interviews with teachers who came into close contact with students outside of the classroom: for example, coaches, school counselors, heads of student guidance departments, and the school nurse.

During the interviews and observations, I focused on adolescents' attitudes toward school and study. I collected information on how students spend time inside and outside school, as well as on the details of their social interactions. I recorded parent and teacher attitudes and theories about what motivates or hinders adolescent achievement. I asked how parents, friends, and other social contacts affect adolescent attitudes toward studying and motivation.

The emphasis in this chapter will be on understanding what role school in general, and math and science in particular, have in the lives of Japanese adolescents. How do students of different ages react to school and what are their expectations of schooling? What role do tests play and what kind of pressure do these tests generate? How do students react to math and science? What are relationships like between parents and teachers? Because of the tremendous range and diversity of economic circumstance encountered during the study, it is impossible to isolate a

"typical" Japanese adolescent experience, but certain major factors and patterns that affect all adolescents can be delineated. These factors and patterns form the broad outlines of the adolescent experience in Japan.

Factors Affecting the Adolescent Experience

Japanese adolescents lead many and varied lives. Within this wide range of behaviors and lifestyles, general trends can be discerned. In the public schools of Kita and Naka City, there are affluent teens who shop every weekend at the most fashionable stores in Naka City. There are also working-class students who spend their nights employed as checkers and baggers in local supermarkets. Some students interviewed were excited about their classes and hoped to enter elite colleges. Others valued school because it was a place to meet friends and worried more about passing their driver's license exam than about their end-of-the term math exams.

In the broadest sense, the major factors that affect adolescent lives are gender, urban versus rural residence, social status or family wealth, minority status, and placement in the academic track.

Gender. I recorded references to distinct gender roles, as well as different expectations for male and female adolescents from both teachers and students. In junior high school, both males and females follow a similar schedule: both participate in clubs, outside school activities, or attend *juku*. However, the teachers expect girls and boys to behave in distinct ways that emphasize the correct feminine or masculine behavior. In high school, gender becomes a salient factor in determining a student's course of study: more young women go into liberal arts and more young men into science. Males are also far more likely to attend non academic (technical or industrial) courses. At Naka Vocational, fewer than 10 students were female. Parents also expressed different standards for behavior based on gender: females were expected to help out around the house more and had somewhat stricter curfews.

Residence. The academic experience of adolescents also differs depending on the region of Japan where students live. However, most regional differences flow from differences in access to transportation and the availability of extra school support. For example, in Kita City the public transportation is limited, and there are few large *juku* chains. This lack of access means that Kita students have a more limited range of high school options to choose from and have much less opportunity to attend exam preparation resources. Consequently, public junior high and high schools play a greater role in preparing and guiding students for the entrance exams in Kita than in Naka City.

Economic status. Differences in the economic condition of families are also significant within a given region. In affluent neighborhoods, like the one around Chuo, students had access to independent sports clubs, trips abroad, and enjoyed very high levels of financial support from their parents. At Shimogawa, where there were many families in which both parents worked, students had fewer opportunities to engage in activities outside of school. This meant that many families at Shimogawa had to make extraordinary efforts to provide their children with access to *juku* or special athletic and cultural activities. Several Shimogawa mothers mentioned taking on part-time jobs just to pay for the cost of *juku*.

The effects of socioeconomic backgrounds appear to persist through high school despite the fact that the parents interviewed uniformly expressed strong support for academic activities. There were marked differences in family backgrounds, aspirations, course of study, and attitudes toward school in the high school students I interviewed. For example, at Meiji High School, a highly ranked high school that routinely sends students on to Tokyo University, the vast majority of the students were from middle class and professional families. Student life at Meiji centered on classes, test preparation, and club activities. In contrast, Naka Vocational students came from mostly working-class or lower-middle-class families. All too often teachers reported that these students were unmotivated in the classroom and seemed to be biding their time until they could enter the workforce.

Minority status. Finally, minority status has a significant effect on a student's academic experience in Japan, especially for students of Korean or *burakumin* descent. While there was no overt evidence of discrimination against students of *burakumin* or Korean descent in the schools we studied, Nabejima (1993) and others do indicate that there are systematic differences in the schooling experiences of students from these backgrounds. While there are indications in the scholarly literature that students from these groups fare worse in school than other Japanese, in our study we uncovered no incidents of discrimination.

School Structure and Adolescent Participation in Schooling

Gender, region, economic circumstances, and minority status are broad parameters that affect students' experience inside and outside of school. But, what is the overall adolescent experience like? Where do adolescents stand in Japanese society? First of all, the very terms "adolescent" and "teenager" are problematic because they evoke only vague images for most Japanese. In creating the original interview formats at

the University of Michigan, it was difficult to find adequate translations for "adolescent." Indigenous terms for adolescence (*seinenki*; *seishunki*, *seishō nen*) have connotations more like the English "youth" or the German *jugend*.

Teachers and parents use "student" (*seito*) much in the same way that American parents would use the term. But, they also commonly use "junior high school student" (*chugakusei*) and "high school student" (*kō kō sei*). Junior high school is the culmination of compulsory education (roughly equivalent to our grades seven to nine), and unless students pass the high school entrance exam, they will be effectively shut out of the public high school system. Once adolescents become high school students they experience major changes in their social life. High schools pull students from across large districts, and in Naka City it was not unusual for students to commute half an hour or more to school. Increased mobility translates into greater freedom to associate with peers with no supervision, as well as a significant expansion in social contacts.

Students also exhibit different academic expectations depending upon the type of high school they enter. Those going on to college generally go on to 2 or 4 years of postsecondary schooling. Those in the non-academic tracks usually enter the labor force immediately after high school. Students and teachers both noted that studying plays a much less important role in the non-academic tracks and that part-time jobs are one of the most significant experiences for students in industrial or technical high schools.

There are also significant differences in curriculum, instructional style, and norms of behavior associated with junior high school and high school education. Junior high schools in Japan have a reputation for strict rules about conduct and deportment. Student and teacher committees carry out virtually all the day-to-day tasks of running the school. Students' time outside of class is taken up in committees or in clubs, when they are not studying for a test. Junior high schools generally draw from larger districts than elementary schools, giving children the opportunity to meet children from outside their immediate neighborhood. While students in the last year or two of junior high school tend to exhibit an interest in the opposite sex, dating is strictly forbidden by Japanese junior high schools, and it is not until high school that adolescents have much opportunity to date. For the students in our sample, junior high school marked the beginning of an intense period of study and club activity.

Junior High Schools: From Morning to Night

In the popular press, junior high schools are portrayed as the busiest of all of Japan's school levels. Arriving at school shortly after 8:00, many students finish up club activities at 6:00 or later. Junior high school students do not have to commute long dis-

tances to school, as do many high school students, and this means that junior high school students generally spend more time in after-school activities. At this age, parents and teachers noted, students need to achieve some independence from the home yet must still be closely supervised by adults.

Daily schedules. In figures 4 and 5, I have reproduced the daily schedules of two eighth-grade students, a boy from Chuo and a girl at Shimogawa Junior High School. During the interviews, I asked students to write down their schedules, and I have selected these two because they illustrate the range of schedules students may have. Although these students spend quite long days in school, their time is broken up between classes, activities, and clubs. Not shown in their schedules are the wide range of special activities that junior high school students take part in every year, such as the cultural festival, physical education festival, school outings, and sports meets. Since most students begin a serious course of study in junior high school, there is often not much time left over for watching television, listening to music, or socializing with friends. While both of these students enjoy such activities, most weeks they are simply too busy with studying and activities to relax.

The boy's schedule (figure 4) illustrates the impact that tests have on students' lives. This boy was interviewed during the end of the semester exams when school ends at noon, so that students are free to go home and prepare for the next day of testing. Like many students, he is studying intensely—logging 6 hours of studying on Tuesday and Wednesday evening. And this studying is in addition to the *juku* classes, which he attends on Monday, Thursday, Friday, and Saturday.

In sharp contrast, the girl studies only 2 hours a night and puts much of her energies into her club activities (figure 5). She is an active member of the student council and the volleyball team, and she spends nearly 4 hours after school in student council and club activities during the week. She also pursues enrichment courses quite seriously, taking 2 hours of piano lessons on weeknights. She clearly distinguishes these activities from the academic *juku*, a review course, which she attends on certain Sundays.

Many students in junior high school regularly attend juku. Combined with time spent in clubs, this means that a significant amount of each day outside of class is spent in some kind of structured learning environment. But, because there are different kinds of *juku*, students may have very different experiences and receive different academic training.

How do these two students' daily schedules compare with national averages? Tables 7, 8, 9, 10, and 11 give a brief summary of how junior high school students spend

Figure 4–Daily schedule of a Chuo Junior High School student

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 a.m.–12:00 p.m.	school	school	school	school	school	school	(9:00) study
12:00-1:00							TV
1:00-2:00	lunch	lunch	lunch	lunch	lunch	lunch	lunch
2:00-4:00	TV	TV	TV	TV	TV	TV	play
4:00-6:00	study	study	study	study	study	study	study
6:00-8:00	juku			juku	juku	juku	
8:00-9:00	dinner	dinner	dinner	dinner	dinner	dinner	dinner
9:00-10:00	bath	bath	bath	bath	bath	bath	bath
10:00 p.m.–12:00 a.m.	study	study	study	study	study	study	study
12:00-7:00	sleep	sleep	sleep	sleep	sleep	sleep	sleep

SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95.

their days. Based on a sample of 1,319 boys and 1,131 girls from Tokyo and Fukuoka, this survey shows that young adolescents in Japanese schools are busy indeed. Only about 10 percent of third-year students get over 8 hours of sleep a night. The students in this survey also were very busy with extra curricular activities. Over half spend 2 to 3 hours per day in some club, and the vast majority go to clubs more than three days a week. As to television time, the students I interviewed appear to watch very little. This is probably due to the fact that their schedules were completed during or around the end-of-semester tests.

Table 7–Percentage of students in survey, by of hours of sleep per day

	Hours			
Year	< 6	6–7	7–8	> 8
1st	6.2	22.6	46.7	24.5
2nd	8.6	27.2	46.8	17.4
3rd	17.0	34.9	37.3	10.8
Overall	**10.2**	**27.8**	**44.0**	**18.0**

SOURCE: Fukotake, 1993.

Figure 5–Daily schedule of a Midori Junior High School student

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 a.m.–							(9:00)
12:00 p.m.	school	school	school	school	school	school	club
12:00–1:00	lunch	lunch	lunch	lunch	lunch	lunch	lunch
1:00–3:00	school	school	school	school	school	school	school
3:00–4:00							
4:00–7:00	student council/ club	student council/ club	student council/ club	student council/ club	student council/ club	student council/ club	juku
7:00–8:00							dinner
8:00–9:00	dinner*	dinner*	dinner*	dinner*	dinner*	dinner*	bath
9:00–9:30							
10:00 p.m.–. 12:00 a.m	study	study	study	study	study	study	study
12:00–7:00	sleep	sleep	sleep	sleep	sleep	sleep	sleep

SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95.
NOTE: *dinner, bath, or piano lessons.

The effects of tests and preparation for the entrance exam are also reflected in the study times logged by students. Students generally study longer in the first year, when they are getting used to junior high school, and in the third year, when they are preparing for the entrance exam. Table 7 shows that about 37 percent of middle school students studied one hour or less each day, and nearly 40 percent studied between one and two hours. Due to the wording of the survey, it is impossible to tell if this studying is directed toward schoolwork or toward exam preparation, but this study time is separate from whatever time students spend in *juku*. The second year, often considered most problematic by Japanese teachers in terms of motivating students, is when students studied least according to this survey.

Differences in the junior high school experience. We found few overt differences in the quality of teachers or basic physical plant in the junior high schools of Kita, Naka, and Minami City. However, school size did play a key role. In small schools like Midori, there were simply not enough teachers to supervise the various clubs; therefore, the club life in Midori was not as active as at Shimogawa. While Shimogawa was somewhat cramped in terms of its physical space, it had enough students to support many sports teams and was a leader in Naka City in terms of athletic competition.

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Table 8–Percentage of students watching television

	Hours					
Year	None	< 1/2	1/2–1	1–2	2–3	> 3
1st	5.9	5.2	18.1	28.7	22.1	20.0
2nd	4.7	3.0	13.0	33.3	23.0	23.0
3rd	5.2	4.4	16.6	35.5	23.2	15.1
Total	**5.3**	**4.2**	**15.9**	**32.4**	**22.7**	**19.5**

SOURCE: Fukutake, 1993.

Because junior high schools are neighborhood institutions, we found differences in the levels of parental income and education between the three junior high schools we visited. Teachers and parents believed that these differences contributed to the quality or atmosphere of the school. When asked what other people in Naka thought about Midori, a parent replied:

> That it has a relatively good environment; the students are unagitated. Some years ago, there were some people in this neighborhood who moved in from other parts of Naka City. They came because they thought the environment was good. (Mother of Midori Eighth-Grader)

However, affluence was not always considered a desirable characteristic by teachers. The nurse at Midori felt that growing up in a relatively affluent atmosphere could stunt the character development of some students. Here, appraisal of the effect of family background on Midori students was more critical:

> Well, there's no unruly behavior. In terms of lifestyle, there is no pain or hardship, nothing like students shoplifting due to poor quality of life. It is very calm. It is calm, but sometimes the students are a bit spoiled. Some students are kind of like weeds, I mean, like grass. The grass that grows on the side of the road is very resilient. The students here are raised in a greenhouse. They aren't used to cold winds or adverse conditions. A bit weak emotionally. In terms of their relationships with friends, many go to *juku* to academic *juku* to study. They don't play with friends, and they have few siblings. There isn't enough hardship (*kuro*) I guess. (Midori nurse)

Many teachers felt that students must become inured to hardship in order to succeed on the high school entrance exam. As students progress through junior high school, studying, rote memorization, and drill take up more and more of their school life. While some students maintain an active role in clubs all the way up through the

Table 9–Percentage of students, study time

	Hours					
Year	<1	1–2	2–3	3–4	4–5	>5
1st	28.3	45.0	21.1	3.7	0.9	1.0
2nd	51.6	34.5	10.9	2.5	0.4	0.1
3rd	30.5	39.6	20.9	6.1	1.8	1.1
Total	**36.9**	**39.8**	**17.6**	**4.0**	**1.0**	**0.7**

SOURCE: Fukotake, 1993

Table 10–Percentage of students, club participation

		Days per Week		
Year	Participation in Clubs	1–2	3–5	6–7
1st	83.6	7.2	40.1	52.7
2nd	69.3	5.3	53.8	40.9
3rd	56.7	5.9	25.6	52.5

SOURCE: Fukotake, 1993

first half of their third year, for most students, the last year of junior high school is focused on the coming transition to high school.

A "Thin Slice": Life in the High Schools

The atmosphere in Japan's junior high schools is largely determined by the size of the school and the neighborhood surrounding it, but the most significant impact on high school atmosphere is overall academic rank. In several of our interviews, teachers and administrators used the term *wagiri* (a slice) to refer to the level of academic ability of students they admitted each year. They noted that this phenomenon was especially true for the academic schools like Meiji and Arata, where a few points on the entrance test could mean the difference between passing and failing. The teachers at Meiji and Arata were extremely conscious of the fact that they were seeing only a "thin slice" of the range of students found in Naka City:

> When they come in, they want to go to college. If it is Meiji, they want to go to a famous or good college. They expect very detailed guidance in studying. Of course, at first, the parents exert a strong expectation. (Meiji social studies teacher)

Table 11–Hours of club participation

	<1 hour	1–2 hours	2–3 hours	>3 hours
Overall	2.8	30.7	56.4	10.1

SOURCE: Fukutake, 1993

According to this teacher, 58 percent of Meiji's third-year students attend *juku*. Meiji is an "advancement" school and students here specialized in *juken benky*. Unlike lower-ranked academic and non-academic high schools, nearly all of Meiji's students go on to college, and substantial numbers of them attend the best universities in the nation. At Meiji, going to college is not a defining characteristic. The primary factor in students lives is what type of college they hope to enter. For example, those choosing to enter science or engineering departments spend much more of their time concentrating on math and science.

Students at Meiji rarely take part-time jobs. Most of their spending money is provided by their family. After classes, many students at Meiji engage in sports and then go home to eat before heading off to *juku*. Even those who do not attend *juku* are busy studying their textbooks, reviewing handouts given by their teachers, or studying materials provided by correspondence course companies that supplement the regular regime of studying.

Whereas middle students in general are busy with the same kinds of things—clubs, studying, enrichment courses, and *juku*—high school students spend their time in very different ways depending on what kind of school they attend. In figures 6 and 7, I have reproduced the weekly schedules of two male students, one at Meiji High School and one at Naka Tech. The student at Naka Tech does study one hour every night, but most of his free time is taken up with his part-time job or attending driving school (figure 6). Since he is a senior, he will be eligible for a drivers' license upon graduation, and the school allows students to take driving lessons so that they can get their license quickly. This practice was not allowed at Arata or Meiji.

In contrast, the Meiji student spends a good deal of time after school in clubs (figure 7). This student has about an hour's commute to school, which is not uncommon. His schedule also includes *juku* classes two nights a week, which means that on some evenings he does not eat dinner until nearly 11:00. Sunday is a time for him to rest and spend a little time socializing with friends. He spends far less time watching television or listening to music than does his counterpart at Naka Tech. When I asked another Meiji student what he expected of school, his answer was simply: "Studying."

The students at Meiji and Naka saw themselves at opposite ends of the academic spectrum. Meiji students were aware that their school was one of the best in Naka City and Naka Tech students openly discussed the fact that they had not performed well on academics in junior high school. Students at Arata generally fall somewhere in between in terms of their academic aspirations and their study or work habits. Some students at Arata want to go on to college and others are not sure. As one teacher at Arata put it, "It depends on the student. Among the third-year students, there are some who study and some who don't." Some seniors are going to juku and preparing for the exam, while others are spending their free time in driving school. Although school policy prohibits students from taking part-time jobs, both students and teachers reported that many students do indeed take such jobs.

Two Schools at Once: The Role of Juku

Most high school students who are trying to get into academic high schools or college attend two schools: their own school and a *juku*. At advancement schools like Meiji, *juku* can play a key role in students' lives. While junior high school students may attend any of several types of *juku* (enrichment courses, review courses, or exam prep courses), high school students are largely enrolled in exam prep or advancement (*shingaku*) courses. These courses are specifically designed to improve students' scores on practice tests and the entrance exam. A teacher at Arata noted that most students attended ". . . the exam prep *juku*, the big ones, like Kawai. Then there are *juku* courses in the summer and spring vacations, when students have long vacations. These are sort of concentrated lectures."

For many of these students, attending *juku* takes precedence over other activities. Again, a teacher from Arata noted: "Well, when there is conflict in the time between *juku* and club, they leave club early." However, *juku* is not the only place that students are doing their *juken benkyō*. Schools also organize extra classes (*hoshū*) after school or over the holidays. A teacher at Arata explained:

> We also have extra classes here at the school. So, when students are in their second year, they have classes about two or three days a week, and these run into club time. The school is officially over after sixth period, but teachers stay in the classroom and teach another hour, so we have seven periods all total.

Clubs and School Participation

At both junior high and high school, teachers believe that there is a strong link between participation in clubs and success in academics. Many teachers linked active club participation with a well-rounded and healthy school atmosphere. Teachers reported how a student behaves outside the classroom is a powerful indicator of moti-

Figure 6–Daily schedule of a Naka Tech High School student

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 a.m.–1:00 p.m.	school	school	school	school	school	school	(9:00) part time job
1:00–2:00	lunch	lunch	lunch	lunch	lunch	lunch	lunch
2:00–4:00	school	school	school	school	school	school	part time
4:00–5:00	TV	TV	TV	TV	TV	TV	job
5:00–8:00	part time job*	part time job*	part time job*	part time job*	part time job*	part time job*	part time job*
8:00–9:00	dinner	dinner	dinner	dinner	dinner	dinner	dinner
9:00–11:00	TV/ music	TV/ music	TV/ music	TV/ music	TV/ music	TV/ music	TV/ music
11:00 p.m.–12:00 a.m.	study	study	study	study	study	study	study
12:00–1:00	TV/ music	TV/ music	TV/ music	TV/ music	TV/ music	TV/ music	TV/ music
1:00–7:00	sleep	sleep	sleep	sleep	sleep	sleep	sleep

NOTE: *part-time job or driving school
SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95

vation and persistence in learning. One teacher at Arata thought that students who did well in clubs also did well in academics "because they are serious. It is all because they are diligent, even when they study, they do it with all their might. 'I must do it,' that kind of feeling exists in both clubs and other activities. These students take responsibility."

Junior high schools and isshokenmei. "With all one's might"—this is one way to translate the term *isshokenmei*, and this translation comes close to capturing the attitude that junior high school teachers and students expect of anyone participating in a club. Club activities, whether they are broadcasting, Japanese fencing, or playing in the brass band, are serious endeavors. First-year students in Japanese junior high schools are required to take part in clubs, and the majority continue to voluntarily participate, in varying degrees, thereafter. Clubs provide a significant source of identity to the extent that those who do not participate in clubs, choosing instead to go home after supplemental classes are over, are often designated as members of the "go home club" (*kitaku bu*).

Figure 7—Daily schedule of a Meiji High School student

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8:00 a.m.–							(11:00)
1:00 p.m.	school	school	school	school	school	school	TV
1:00–2:00	lunch	lunch	lunch	lunch	lunch	lunch	lunch
2:00–3:00	school	school	school	school	school	school	free time
3:00–4:00							club
4:00–5:00	club	club	club	club	club	club	club
5:00–6:00		dinner		dinner		dinner	
6:00–7:00	drive*	drive*	drive*	drive*	drive*	TV	dinner
7:00–8:00	dinner	study	study	study	TV	TV	TV
8:00–9:00	TV	TV		TV	study		
9:00–10:00	study	study	juku	study	juku	juku	TV
10:00–11:00							juku
11:00–12:00	sleep	sleep	dinner	sleep	dinner	sleep	sleep
12:00–7:00 a.m.	sleep		sleep		sleep		

NOTE: *this student has a commute.
SOURCE: Third International Mathematics and Science Study, Case Study Project, 1994–95.

The idea of devoting all of one's extra energy to club activities is part of the expectation that junior high school students must study hard and play hard. School is an intense but often enjoyable experience. Socialization outside of school is a source of concern to parents and teachers. They expect students to participate in club activities after school and on weekends. Except for *juku*, socialization outside school is kept to a minimum by adults. For junior high school students, social interactions with peers most often occur where there is some adult supervision. Apathy, lukewarm participation, or half-hearted endeavors are considered to be the antithesis of the junior high school experience, and students displaying these characteristics can be harshly criticized by teachers and peers.

Participation in clubs is part of the balance that teachers and parents feel is necessary for students at this age: a balance between physical versus mental activity. The adults I interviewed thought that students need opportunities for vigorous physical activity and an active social life. The fact that students may end up exhausted at the end appeared to be taken for granted by many parents.

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Interviewer: Do students practice every day and on Saturday?

Parent: Yes, even on Saturday. Though now the second Saturday is a vacation. On Sunday they can have meets. They get tired, but I suppose they are used to it. And then they have *juku* until 10:00. It really is late! Lately, my daughter has gone to sleep in her school uniform. (Shimogawa parent)

As students get older, they also gain seniority in the clubs and take a stronger role in directing the practice. However, many students retire from the club after their first semester as third-year students in order to devote their energy to studying for the tests. This development means that for many students, the second year in junior high school is a crucial transition year when students move from junior status in the clubs to take on a leadership role. As students move up into senior positions in the clubs, they appear to display a growing seriousness about club activity.

High school and independence. One evening I observed the student managers and team members of the basketball club at Arata High School. Both the boy's and girl's clubs were practicing on the same court. It was perhaps 50 degrees Fahrenheit in the unheated gym, and the student manager of the girls' team was huddled in her coat with a training jersey draped over her legs. She said that she became interested in basketball in junior high school, and although she wished she could play or take part in the practice, she did not feel good enough to play on the team. However, she said that she came to practice everyday and stayed until practice was over (about 6 p.m. in the winter months).

The captain of each team directed the practice. The girls' and boys' styles of practice differed significantly. The girls made extensive use of sing-song cheers, chanting rhythmically as they drilled. The boys drilled in silence or counted off. The boys also tended to spend more time on playing mock games, while the girls spent much more time on drills. The girls' captain kept up a pattern of encouragement and advice, yelling "Shoot!" and "Nice shot."

After about half an hour, the teacher who supervised both teams came in and formally introduced me to the team members. He said that his specialty is really baseball, so this club really has to "instruct" itself. He stayed for about 20 minutes and left again. After his departure, the students worked on group drills with each student trying to better his or her performance.

The fact that teacher-supervisors at the high school level may only briefly check on how the club is doing indicates the degree of independence and responsibility that club members are expected to have. Senior members are expected to be responsible

for training new members and for overseeing the club finances. Most of the times that I observed clubs like these, students spent their time doing various drills.

Participation in clubs at the high school level is, again, quite varied. At Naka Vocational, many students preferred to work rather than join the clubs, but the baseball team was exceptionally popular and had won several local tournaments. At Meiji, the school had a strong tradition of general club participation. Most of the students took part in some form of club activity. At Arata, club participation varied greatly with certain clubs being popular and others barely limping along with only a few members.

Problems With School

Most of the criticisms expressed by the respondents in this study were not directed at schools directly, but at the exam system and the pressures that it created within school. It is the exam system, respondents noted, that pushes teachers to cover so much in each class, that pushes friendly rivalry into stark competition and feeds the large *juku* industry. Respondents noted that exam pressures begin to affect students about a year and a half before the exam, i.e., the second year of junior high school.

In the classroom, academic competition is commonly promoted by comparing an individual or a group's performance with some absolute standard. Teachers commonly exhort students to get a few more points right than on their last test, to try and surpass the class average, and to score above the cut-off point on the practice exams for the school of their choice. Teachers harangue their classes to boost the average for the class up to or above the average for the school. Many teachers linked these academic pressures with the fact that more and more students are refusing to attend compulsory education.

School refusal. School refusal (*tokō kyō*) was one of the most common problems discussed by teachers and parents. The problem of school refusal is growing. In 1992, the *White Paper on Youth* showed that about 10,000 elementary school students and nearly 50,000 junior high school students were considered to have school-refusal syndrome. This is compared with about 3,000 elementary and 10,000 junior high school students in 1978 (ibid.). What teachers mean by school refusal differs, but in general these students will not come to school for weeks or months at a time. Often these students express discomfort at being around other students, seem extremely shy, and appear to have underdeveloped social skills.

At Midori, the nurse's office was used as a kind of transition room for the 8 to 10 students who would not attend regular classes. Students were allowed to come to the nurse's office and work on worksheets for an extended length of time. After students

seemed comfortable with working in the nurse's office, the nurse and a teacher on the guidance committee would try to get the student to attend one class a day, often a non-academic class like art. Teachers also encouraged peers to try to involve the students who refused school in more activities. In this way the teachers hoped to reconnect students gradually to the social life of the school so that they would not drop out.

Students who have problems fitting in socially were seen as also likely to have problems academically. Most of the students who were being counseled through the nurses' office had poor grades and were unlikely to be able to enter any of the academic-track high schools. This fact, teachers said, leads students to become completely disenchanted with studies. These students are at risk of dropping out of the school system, either at the transition to high school or after they have spent a year or two in high school. The problem of dropouts is growing for the first time in the post-war era.

Dropouts. Dropping out is difficult to define and measure. Sometimes teachers will refer to students who are sitting in class as dropouts. From the teachers' point of view, dropouts are students who are often absent from school or are inattentive and refuse to participate in class. Students who exhibit this behavior are usually labeled as *ochikobore* and eventually these "dropouts" may fail to attend school altogether. One teacher at Midori described such students as having "no place to live."

At the high school level, a certain percentage of students fail to complete their education. While this percentage is small in general, it is greater in the non-academic tracks (Shimizu, 1993). At Naka Vocational, the teacher who headed the guidance committee discussed the dropout problem:

> Teacher: Well, this year, 27 students have dropped out so far (*chū totaigaku*). That's for the whole school—first to third year. Every year it's 25–35. The first year is where most dropout, only one or two drop out in their third year.
>
> Interviewer: Why do they drop out?
>
> Teacher: Most drop out because (they can't do) the academic work. The second reason they give is 'This school doesn't suit me.' They say a regular or night school would be better, and they try to make a change in their future course.
>
> Interviewer: Do dropouts also go to work?
>
> Teacher: Yes, most can't do the studying that is necessary, or lack interest, so they find a job.

In this interview, the teacher combined students who quit school to work with students who entered some other form of schooling, most often a night high school or

correspondence course in the case of Naka Vocational students. This vagueness in the usage of the term "dropout" appeared to be common to both junior and high school teachers.

School Violence. Violence in schools (*kō nai boryoku*) is also a concern for Japanese teachers. This term covers a wide variety of actions including violence against other students and teachers. Levels of school violence were higher during the 1960's and 1970's, and members of the community were sometimes drawn into the conflict. Data from the Prime Minister's office indicate that in 1982, 1,028 junior high schools and 346 high schools experienced some form of school violence (Sorifu Sieshonen Taisaku Honbu, 1982). These rates fell until about 1988 when they began to rise again. In 1992, 882 junior high school teachers and 244 high school teachers reported being injured by students at school (Somucho, 1993).

Junior high school teachers in Naka and Kita City said that in the past some incidents of school violence had occurred in their schools. One teacher at Kita Junior High School linked school violence to the influence of the media and to family problems. He thought that students responded to violent images they saw on television and were more likely to be violent if their home life were unstable. He described an incident of school violence that had occurred while he was teaching at one of the more rural schools in the prefecture:

> It was just like on *Kinpatsu-sensei* [a popular television show]. The students took up posts outside the teacher's room and blocked the hall. They broke the glass. This confrontation in front of the room escalated and it turned into a mess in the teacher's room. I was hit in the nose with a drawer.
>
> They were mad at the teachers, because the teachers weren't working together. And, in that area, there was a lot of divorce. So the kids were very upset. Some weren't studying and the whole school was tense. The school and parent relations were disrupted; there were no real PTA relations. That is why it happened.

The breakdown of human relations—between parents and children, teachers and students—was a significant theme brought up again and again by teachers and parents. When asked to discuss why problems like bullying or school refusal were on the rise, teachers and parents often attributed the rise in problems to a combination of several factors: increasing competition on the entrance exams, too much emphasis on material prosperity and consumerism, a lack of opportunities for intense peer interactions in the early childhood years, and the fact that families were smaller and more isolated from each other.

Family Influences on Adolescent Development and School Participation

The family, as well as peers and school, plays a crucial role in forming student's attitudes toward schooling and academics. In the case of Japan, research has documented that studying and homework are central concerns of Japanese families (Stevenson and Stigler, 1992; Lewis, 1995). This theme is captured in the media by the stereotype of the "education mama" (*kyoiku mama*) who sacrifices her career to stay at home making lunches, fixing school uniforms, and preparing material for the next day at school. In the media portrayal of Japan, hordes of students wearing headbands which signify their participation in the "exam war" *(juken senso)* are supported by the eternally patient supply corps of doting mothers.

As with many media images, this image of Japanese education is somewhat distorted. It is true that in Japanese culture the mother is expected to play a central role in supporting her child's education, a role that fathers are rarely expected to fill. Indeed during the important preschool and early elementary years, it may seem to the young Japanese mother that everything is, as Fujita (1989) described, "all mother's fault." The mother in the early years is responsible for providing a wide range of support including (but not limited to) lunches, clean uniforms, preparing various accessories such calligraphy brushes or swim gear, as well as overseeing homework. However, parental involvement in education changes dramatically as students enter adolescence.

Family Time and School Time

After entry into junior high school, students spend more time in school than with their families (please refer to figures 4 and 5). Perhaps because students are away so much of the day, the parents we interviewed made great efforts to create a time when all the family members could be together. For some this was a family vacation in the summer, for others an outing to local parks or museums on national holidays. For the working-class families, like those at Shimogawa Elementary and Naka Vocational, finding such a time was extremely difficult. A Shimogawa mother described her family's situation:

> Well, we get up very early, at 3:30 a.m., because we have a bread store and must get to work. I don't know when the kids get home from juku or what time my daughter goes to bed. I asked her: she usually goes to bed at 11:00. Grandpa stays up until she comes home as it is dangerous for a girl to come home that late. My

> boy sometimes falls asleep by 8:00 in front of the television. He is hard to get up in the morning—asleep in bed! How many hours he sleeps! I think his brain gets a good rest.

Working-class homes were not the only ones where it was hard for the family to be together. I interviewed several middle- and upper-middle-class families where the mother did not work outside the home but the father worked in another part of Japan.

Family schedules seemed less coordinated once students entered high school. In families where the father commuted to work, dinnertime was rarely an opportunity for everyone to get together. A student at Arata described her family's dinner routine:

> Sometimes its 8:00 to 8:30. Sometimes as late as 8:40. Recently, just my mother and I eat together. My dad is always home around 8:30. My brother, he goes out on dates and such. We are all over the place.

Another student said that because of her club participation "I eat separately. My father comes home at 5:30 and the three of them (parents and sibling) eat together."

Japanese parents tolerate the fact that they see little of their children after the elementary school years are over, but many expressed concern about the need for parents and children to engage in some form of recreation. One mother at Chuo explained that her friends had an innovative way of socializing with each other and their children. She and her friends take their sons to go *karaoke* singing:

> I usually go more with my son's friend's mothers than with my husband. We learn a lot about school, about the students and the classes. The karaoke establishment is the place where we parents can talk. It is also a place where there is consideration for others: gentleness, kindness, all these things come out. So, in terms of education, I don't think it is good for students whose parents don't take them places. A student needs to have experiences like: 'Oh look, if mother does that, then it is all right if I do that.' Even if a student doesn't understand, if he sees his parents doing something, he will learn. When he goes out to play at a friend's house or bowling, he will learn from the way that his friends' families talk with each other.

Parental Expectations for Schooling

Parents in this study expressed widely divergent views about the basic purpose of schooling.

For example, some parents thought that studying was supposed to be fun or enjoyable so that students would like school and continue to want to attend. Others saw studying as building up character. As Singleton (1967) wrote, a major goal of schooling for many Japanese parents is to get students to persevere (*gambaru*) and patiently bear inconveniences or hardship (*gaman suru*). This is a type of training in determination, and parents see these qualities as essential for the future success of their children. One mother at Chuo eloquently discussed her views on studying:

> From the student 's view, school is a fun place; if it wasn't fun, they wouldn't go. But I think it is also a place of pain (*kutsu*). They have to study. It is necessary to study to grow up into an adult. They have to do it or else, everyday. So, I think that studying can be painful.
>
> I think that you learn up until death. It isn't the kind of studying you do sitting at a desk. For example, you study the relationships between people. Learning to cook is also studying as is learning how to do things from your husband's mother. If we aren't learning each day, what reason can we give for having this human life? Human development is not just studying at a desk. I think they have to prepare them for society—they have to focus on human development.

Parents of junior high students in particular put emphasis on the character-building aspect of studying. Because parents and teachers alike see this as a crucial time in the formation of student character, junior high schools have traditionally tried to balance studying hard with vigorous physical activities, exposure to the arts and music, and a lively calendar of events. While parents want their children to do well on the exams, they also want them to be well-rounded people, but their concern for success on the entrance exam tends to come through most clearly. Teachers respond to this primary concern, but the teacher's reactions are often interpreted by parents as putting too much emphasis on studying for the tests.

On the other hand some teachers complained that parents did little more than tell their students to study. They wanted parents to take a more active role in the overall education of the student. Teachers also saw studying as more than book work, and they lamented the fact that they are pressured into teaching to the test. While teachers and parents evinced a strong desire to work together to provide a vital learning climate for students, both parents and teachers tended to respond more to the concerns around the entrance exams. These common responses feed off each other and tend to drive classes more and more toward exam preparation.

Studying and Parental Attitudes

The concept of studying (*benkyō*) has very broad and overall positive connotations in Japan. Several Japanese terms cover the range of studying activities in which stu-

dents engage. Specific school assignments are *shukudai*, preparing for lessons or reviews of class is called *yoshū*, and practice questions are *renshu mondai*. *Shukudai* and *yosh*are the closest English approximations of "homework." Each day, junior and senior high school students will cover a certain part of the text in class, and will be expected to review the day's lesson and prepare for the coming lesson as "homework." *Renshū mondai* are typically questions assigned by the teachers that highlight salient parts of the lesson or mimic questions that will appear on upcoming tests.

In both junior high and high schools, the assignments for the days classes are commonly written by the students on the chalkboard in the rear of the homeroom class each day. Students take turns throughout the year being responsible for writing down these assignments. The homeroom teacher also frequently checks to see that the day's "homework" is recorded for all to see on the board. This kind of studying is associated with school work. While studying (*benky)* can mean "cracking the books," it also has wider meanings. As one parent at Chuo Junior high School put it:

> Human development (*ningen keisei*) is not just studying at a desk. I think they have to prepare them for society—they have to focus on human development. I realize, as the teachers do, that while in school they have to study, but they have to learn things outside of that, as I said before, consideration for friends, kindness. I think they really have to study those things. Then there are the relations between seniors and juniors (*senpai/kō hai*). They have to study that a lot. It isn't just what I expect; they have to do these things if they are going to develop their humanity. If they just study, they won't have much humanity. It is best if they can combine the two: studying and developing humanity. I think that is necessary for education at the junior high school.

Teachers saw the junior high school and high school years as a time when students become more socially responsible. As students mature, the teachers expect them to take more active roles in the life of the school as well as take responsibility for instructing younger members of their clubs or committees. However, the necessity of preparing students for the entrance exams means that teachers rarely have enough time to devote to character development. In this regard, the parents were often critical of the education provided by the schools. Students, they felt, were not developing a sense of social responsibility necessary for life in Japan's adult world. The mother of a third-grade girl at Shimogawa put it this way:

> But when she gets out into the world, I think she will have to measure up to different standards. So, when she goes out into society, it won't be that she is good or bad at math, nor if she can speak English well or not. There are lots of kids out there without "heart." For us it is most important to instill our students with a sense of thoughtfulness for others (*omoiyari*). Studying, well, it is a problem if

they can't do it at all, but if they don't bully, if they respect others, that is the kind of upbringing we want.

Studying in the broadest sense means a continual process of learning or self-improvement. Teachers and parents in this study referred to the fact that students must learn how to interact with others as part of the "studying" that goes on in school. *Benkyō*, in this context, refers more to the things students need to learn. For example, Japanese students tend to define social rank based on age and years of affiliation within a given organization, (e.g., between juniors and seniors). In the clubs, first-year junior or senior high school students are juniors (*kō hai*). They are expected to follow the direction of the second- and third-year students who are their seniors (*senpai*). Seniors generally are the team captains or club leaders and take an active role in organizing the training as exemplified in the basketball practice at Arata described above.

Preparation for the entrance exam (*juken benkyō*) is yet another distinct kind of studying recognized by adults and adolescents. Studying for the exams occurs in several contexts. Junior high and high schools provide extra classes (*hoshū*), usually for third-year students only, that are directed at preparing for the exam and cover different material from that learned in the regular classes. Junior high and high school students also enroll in advancement *juku* (*shingaku juku*) where they will memorize material from previous tests and take many practice tests. Individually, students also engage in *juken benkyō* by buying any one of the many practice test books and pamphlets available in bookstores or by enrolling in correspondence courses that are specifically aimed at preparing students for the entrance exams.

Parents and Homework

Parental involvement in homework is sometimes a source of conflict for teachers and parents. After the first few years of elementary school, parents may rarely look at a student's homework. Many junior high parents feel that they cannot help their students with homework. Except for teachers, university professors and an occasional engineer, Japanese parents seldom feel confident in giving students guidance or assistance on study matters once they enter junior high school. Nor did teachers expect parents to take an active role in supervising or checking homework. Parents often noted that junior high students had begun studying material that is too complicated for parents to understand.

This tendency for parents to take a less active role in supervising homework was more pronounced at Shimogawa than at the more affluent Midori or Chuo where parents tended to have higher academic backgrounds. But, across all levels of social background, once a student enters junior high school, parents tend to urge students

to study, but rarely supervise homework. One teacher at Midori noted that: "Yes, parents are very concerned. They don't help with homework, but they do send their students to *juku*; 60-70 percent of kids go to *juku*. Some kids go to club, *juku*, and enrichment courses. So, kids have no time with friends."

One parent at Shimogawa, when asked if she made her child study, said:

> Yes it is necessary. It is really hard to judge what to say in order to increase their motivation. That is my worry nowadays. My middle one, he goes to *juku*. 'I hate *juku*,' he says, so I say 'how about a home tutor?' The problem is, if I knew someone it would be okay, but I don't know anyone. So I am worried. I let the kids pick. We try to make it the habit that they study each day.

However, parents of high school students were very noncommittal about motivating their children to study. A father at Arata said: "My daughter? I leave it up to her: study time and the like." Parents who were well-educated themselves tended to take a more active role in school events, but in general parents of high students appeared to offer little or no supervision of homework or studying. However, they were willing to provide monetary support and enroll their children in *juku*:

> At high school parents don't help at all [with homework]. If the father is an engineer or something like that, maybe. But for most people, when the student gets into high school, they don't help. They will send the student to *juku*, or they will spend money to provide a study room or hire a home tutor. (Meiji teacher)

One reason parents gave to explain why they no longer supervised their children's schoolwork was that they were uncomfortable discussing the lesson because they did not know its format or the explanations included in the teacher's text. From junior high school on, memorizing the correct answer is of paramount importance in a student 's education. The changing role of parents in their children's study habits appears to be tied as much to the changing nature of how subjects are presented and the kind of answers that are required as to the level of difficulty of the material.

Parental Involvement in the School

Parental participation in school activities varies depending on the age of the student and the kind of school attended. In the elementary years, parents are actively involved in many school activities. For example, a teacher at Kita Elementary described the various events that parents, usually mothers, took part in:

> Teacher: We have a meeting for each class once a year. The other times that someone from the home would come with the students would be the school festivals. In fall, we have the sports festival. As for other meetings, in the first and second

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semesters, we have a meeting just with the parents. Often it is just the mother. Out of thirty students I'd say that only one father comes, so it is really 99 percent mothers.

Interviewer: Are there other times when parents come?

Teacher: Yes, three times in a year. Three times to see the class. Also there is the exercise (*undo*) meet, music meet, and other exhibitions (*happyo-kai*).

By junior high school, parents are coming to school less, especially to view classes. However, at some schools parents will still turn out in numbers for school events. According to one parent who was active in the PTA at Shimogawa:

There are parents who are very positive and those we never see at all. About half and half. There are working couples, where the mother also has a job, quite a few at this school. For many parents it is inconvenient to get the time.

While parents of junior high school students tend to come to school for fewer events, they are still active in such organizations as the PTA. In the Japanese PTA, the parents elect one or two members to represent all the parents of the students in that class. Two common PTA activities are producing a newspaper, which keeps parents informed of what the students are doing at school, and providing support for major school events like the yearly festivals.

As one mother at Naka Vocational explained to me, parents can relax when their students get into high school. Even in cases where parents still admonish students to study, the effect is negligible. A teacher at Naka Vocational noted:

There are many parents at our school who have stopped demanding anything of their kids. Even like coming home late. I wish they would be a little stricter. They tell their kids to study, but the kids are high school students, so they don't listen.

At the high school level, parental involvement is also affected by the kind of high school that students attend. Parents of Meiji students appeared to be more likely to come to school for various events than parents at other schools. When there are specific events that affect students' future academic opportunities, teachers at Meiji can expect a strong showing. For middle-ranked schools like Arata, parental turn out can be lower. An Arata teacher noted:

Well, at the sports festivals most of those who came were all PTA members. In terms of other things at the school that parents take part in, there are lectures on school advancement. They come to school to hear about school advancement matters, but I don't think the percentage of those coming is so high.

In sharp contrast to Meiji and Arata, parents at Naka Vocational rarely, if ever, came to school. I asked a group of students at Naka Tech if their parents ever took part in school events.

Student 1: No.

Student 2: Nope.

Student 3: They don't.

Student 4: When my brother was in school my dad did some things, but not now.

The withdrawal of parents from school activities as the student grows older occurs simultaneously with a decrease in the amount of time students spend with their families. By high school, Japanese students exhibit a surprising degree of independence. They often commute long distances, their parents do not supervise their homework, and they may be at school or *juku* until late at night. Even when they return home, many high school students head to their rooms to listen to music, study, or play computer games. Those attending *juku*, or who take an active role in sports, often do not eat dinner with their families. The balance between family time and school time is increasingly tilted toward the school (or part-time jobs in the case of Naka Vocational students) as the student grows older.

Family Problems

The condition of Japanese families is a major topic of concern for Japanese educators. Teachers tended to link student problems (e.g., juvenile delinquency, lack of motivation, emotional troubles) to problems in the family. Recently, the Japanese media has focused on the rising incidence of bullying and linked bullying to the decline in family size. With smaller and smaller families (there are less than two children per Japanese couple on average), students have fewer siblings.

Despite the relatively low rates of delinquency in Japan, parents and teachers are concerned with what they perceive as the growing isolation of Japanese students. Adults argue that children who are brought up with little contact with siblings or peers of various ages lack both a sense of degree and a sense of responsibility. Many Japanese also argue that the low birthrate has also had another effect: parents are too emotionally attached to their children to discipline them sternly. Teachers in particular expressed frustration at the lack of upbringing (*shitsuke*) exhibited in most Japanese homes. When asked how student behavior had changed over the last twenty years, a senior teacher said:

That's difficult. Well, getting angry. When parents get angry or scold children, well children used to say 'I'm sorry' and reflect on what they did wrong. Now, they aren't used to being scolded. The number of children in each family is decreasing, parents pamper their kids, and they don't scold them. (Meiji teacher)

Teachers were adamant that parents needed to take a stricter approach in raising children, particularly in inculcating basic manners. Public conduct and poor upbringing were linked together by several respondents. A teacher at Naka Vocational wished that parents would train their children better:

There are parents who don't scold their children. For example, in the middle of a train, a mother may not care if a child jumps on the seat with shoes on. It's a question of basic morals. This comes out in junior high and high school. It's not just here in Naka City, it's all over. It's a loss for the adult society. At our school, you'll notice garbage thrown all over. The students haven't learned to take care of their own things.

However, there is disagreement as to what specific behaviors in the family cause adolescent problems. Many teachers do not see the cause of adolescent delinquency as a lack of upbringing or sternness, but rather they feel that rebellious or dangerous behavior on the part of students often stems from the lack of communication between members of the family. Many teachers pointed to a number of factors which stifle family communication: students are busy studying; fathers are working late; and family entertainment is provided by the television. Students, many teachers argued, are growing more and more distant from their parents.

These kids aren't understood at home. There is no place to express their feelings, to relax, or to tell their inner feelings. When they go home, there is no one who gives them comfort. The atmosphere at home is like: "Hey you! " That is how they are treated at home. They don't want to go home. We often go to visit the house, talk to the mother and father and try to get the kids involved, try to get the family to relax together. The student's mind (*kokoro*) needs to be eased or relaxed, but there must be someone at home to put the student at ease. If someone at home does this, then the child will calm down. (Midori teacher)

A teacher at Chuo was more blunt. He linked parental involvement in the student's life with most juvenile problems:

Here [at Chuo] all of the families are well-run. The parents look after the students. It probably is not proper to talk of such matters, but there are a few families where both parents are working. For example, at my last school both parents worked. For that reason the students were able to do as they liked. Here the father goes out to work and the mother stays at home. The students are in contact [with their parents] which means that they don't do as they like. Generally, if you

> talk about social problems, in those households where students lack a parent, that is where you see tobacco and thinner use [sniffing glue or paint thinner is the most common form of substance abuse among Japanese adolescents]. Here the parents are definitely around, so we don't have these problems.

Whether or not parents and teachers blamed a lack of strictness or a lack of communication for the problems of Japanese young people, all were concerned about the lack of social connection between adolescents. This is a condition that many feel is increasing in Japan. The current generation of adolescents, adults hypothesize, is not as adept at developing friendships as previous generations. At Naka Vocational one teacher noted that because students had underdeveloped social skills, the possibility for students to develop negative relationships became more likely.

> Well, from where I stand, I'd say the students aren't very good at making friends. To make friends, well . . . you have to mutually boost each other's goals. Our students don't really make "friends." What happens is that they egg each other on: riding bikes without permission or license, staying out late. The negative side is common. They aren't very good at making the positive kind of friendships.

Teachers were generally concerned about the decline in upbringing of students (*shitsuke)* and their inability to work within the highly structured Japanese school setting. Educators saw themselves as the primary teachers of proper social behavior and worried that students were not exposed to good models at home. As one teacher at Shimogawa put it:

> Upbringing (*shitsuke*). Now a days, quite a lot of the teaching of upbringing is given at the school: greetings, manners, and the like. The school gives that guidance, but I would be thankful if the home were the base for upbringing. For example, in a recent bullying incident, money was gradually disappearing from the parents purse. If the people at home were careful about this, the incident would not have happened.

A teacher at Midori described problems between students and their families in the following way:

> They don't understand their studies, they don't play with friends, they are removed from everyone. They can't communicate, so they easily slip into bad behavior, they break things. These students appear to have communication problems at home.

These problems at home sometimes escalate into violence. Students from poor families, and students who have only one parent, are considered more likely to commit acts of violence at home. The counselor at Naka Vocational described his work:

I often go to a student's house if the parents request it. I listen to what the parents want to say. The parents have things to say, but the parents just tell kids what they want them to do. I try to listen and find a way to explain. There is a communication gap (between students and parents). There can be fights or face-to-face confrontations. I've seen this kind of thing. One time a father said just a few words and his son grabbed him around the throat. The (family) relations were very bad.

Social Isolation, Divorce, and the Exams

Teachers and parents alike thought that adolescents in Japan today have a much harder time socializing with their peers and working out their disputes. The isolation of children is a significant theme in both the media and research literature in Japan. Authorities argue that children no longer have access to large, multi-age play groups. Isolated in apartments with little access to playgrounds, they suggest that Japanese children do not have the opportunity to socialize with other children until they are in preschool, and then they socialize only with children of relatively the same age. Given that the average number of children per family is now less than two in Japan, they further argue that few Japanese students experience the rough and tumble play common in the larger families of a generation ago.

Parents and teachers expressed concern over the pressure that exams and long hours of study put on students. While time spent in hours of tiring club practice were generally not seen as harmful, the long hours of studying were deemed to be potentially detrimental to the students' health. Lack of sleep, the result of long hours of study, tended to be more common at schools like Chuo and Meiji where student schedules were packed with *juku* and clubs. A teacher at Chuo commented:

During the tests, students are up really late. They study all night. Virtually all are up to midnight. They don't sleep before then. When that goes on, I wish they would use their time better.

Divorce was another common theme. The school counselor at Naka Vocational estimated that out of every 40 students, 12 were living only with their mother because of divorce or (more rarely) the death of their father. This teacher reasoned: "With only the mother, it is hard to make ends meet. The parent can't watch over the student." At Meiji, the school counselor said that most student problems are related to situations where "the mother and father are fighting. We aren't used to divorce in Japan. So, when it looks like parents are divorcing, the kids don't know what to do."

Peer Relations

Despite the emphasis on academics and school advancement in most Japanese junior high and high schools, schools are the major social arena for most Japanese adolescents. Even at the most highly ranked academic schools like Meiji, many students value school primarily because it provides an opportunity to make contact with peers. Students and teachers at all levels responded in much the same way to the question: "What value does school have for the students?"

> School? I guess, a place to make friends. A place to contact others. There is also study but, meeting friends. (Meiji student)
>
> Friends, to be with them. Then study and the clubs. (Shimogawa student)
>
> Well, it isn't a place of learning. It is a place to be with friends. (Chuo teacher)

Although studying or training for work were important to students, it was clear that school also was the major area of social contact in students' lives. With so much of their daily time tied up in classes and clubs, students had little opportunity to meet students from outside school. Nevertheless, parents and teachers were concerned about adolescent friendship patterns, because of a common belief that friends have a strong impact on adolescent attitudes towards studying and school. A mother at Chuo reflected:

> He is studying so hard from Monday to Saturday, students really build up a need, so on the weekend, they need free time. To do what they want with friends—communication. The rest of the time they study, like before tests, so I let him spend most Saturdays and Sundays as he likes.

A second aspect of this belief is that friends also affect students' motivation to study. For several of our student respondents, competition with friends was an important source of motivation to do well in school and on the entrance exams.

Sources of Friendship

Young adolescents enter a new school along with their friends from elementary school, and these friendships appear to ease the transition to a new and larger social arena. As students go up the schooling ladder, their range of social contacts widens. This is most dramatic at high school, where students suddenly come into contact with other students from across the city. While some friendships do continue over a student's school career, the most important sources of friendships are the student's current homeroom class and club.

Classes. Upon entering school, students make their first friends in the homeroom classes in which they are placed. Homeroom classes in Japan spend nearly the whole day together, and there are several times during the day (morning meeting, lunch, cleaning, long homeroom period) where the class meets to discuss, relax, or take care of chores. Each class develops a strong sense of identity. At the junior high school level, students are with each other for the entire day while teachers rotate in and out to teach various subjects. Classes are also the common unit of competition in various school events. For example, some schools have a choral competition in which each class is judged on its singing capabilities. At other school functions, students move as a class, entering and exiting the gym together.

At the high school level, the importance of class as a unit of friendship is still strong but is somewhat weaker than at the junior high school level. Students in high school are more often broken up into ability groups for classes. In schools like Naka Vocational, the students are also divided up by sections such as Engineering or Computing. These section divisions play a large factor in friendship formation at Naka Vocational. At Arata and Meiji, students are regrouped and streamed into different areas of concentration after their first year, and students tend to socialize more with others in the same area of concentration.

The importance of clubs. One source of friendship associations that cuts across class, grade, and section lines at both the junior high and high school level is the club. Japanese schools have both voluntary and mandatory clubs. The mandatory clubs meet once a week, and student participation may be rather lackluster. However, the voluntary clubs take up an enormous amount of student time. Regardless of whether they are athletic or cultural clubs, students tend to put a significant amount of energy into club activities. Quite often teachers must ask students to leave the school in the evening because they are so engrossed in their club practice.

"Students form groups based on clubs," a teacher at Naka Vocational said. A teacher at Arata thought that the clubs were the most significant source of friendships for students. Clubs provide a stable source of friendship relations over the student's three-years in junior high or high school, and students who do not participate in a club lack these crucial links. Also, clubs have the important function of introducing students into the social hierarchy of the adult world. Third-year students are the leaders of the club and are expected to instruct new members, guide practice sessions and behave in an exemplary manner. As students progress from one grade to the next, their seniority in the club rises. This progression gives older students a stronger sense of identity with the club and school. It is no wonder that many teachers associate lack of club participation with problem behaviors.

Divisions and sections. The texture of student life is determined by what "slice" of the overall high school hierarchy students have entered. Daily patterns of interaction, abilities to participate in certain groups, and the basic attitudes toward academic studies are all determined by where one goes to school. The divisions between schools and between courses within schools revealed remarkably similar effects despite regional differences.

Divisions within the school also has a strong influence on friendship patterns. Particularly at Naka Vocational, where students specialize from their first day in different fields, making friends with other students in the school can be very difficult. One teacher at Naka Vocational said: "Associations within the sections are important, because students are taking the same license. Because we're not a *shingaku* school, studying is not a factor." By this statement, the teacher meant that students are not drawn together in the way that Meiji students are. Because Meiji is a *shingaku* school, students who are trying to enter the same college or level of college will tend to group together for study sessions or because they share a common goal. At Naka Vocational, students trying to get the same license (e.g., electrical engineering) will group together because they must study for the same license exam or simply because they have a common vocational interest.

Juku and Friends

While United States images of Japanese *juku* generally center around students cramming for entrance exams, parents in Kita, Minami, and Naka City indicated that *juku* attendance may have a purely social function for some students, as a father of a Chuo student thought:

> *Juku* used to be like school, but for students now it is different. It is a kind of fashion. That is why there are so many of them. They go to *juku* and socialize.

This friendship aspect of *juku* is not limited to the more affluent neighborhoods or the higher-ranked academic schools. At most levels, *juku* is generally an interesting place for students. Because *juku* are for-profit enterprises, *juku* teachers must make lessons lively and clear. However, the role of *juku* as a source of friends and as a "fashion" must be kept in perspective. The overwhelming response of parents and students was that *juku* was a place to study, a way to prepare for school and the entrance exams.

Kyoso Ishiki: A sense of competition. Most Japanese students don't want to "lose" to their friends by getting lower points on the various tests and quizzes that occur frequently in Japanese schools. However, this same consciousness of wanting to be like friends can also lead students who might have done better to not try their hardest in

order to fit in with the group. The two tendencies are not contradictory but stem from the student's desire to be like his or her friends. When friends are interested in school advancement, there will be friendly rivalry over who gets the most points on tests. When students are not interested in advancing in school or, more commonly, when they perceive little chance for advancing, friends may provide the impetus not to study. One father at Chuo described the effect of his son's friends on studying:

> On studying? Those who can't, compete to see who can't [laughter]. But I think he really wants to do a little better than his friends. Of course if he is too far above, then he is like a different group. They don't want to lose to other students of the same group or level.

The culture of studying at Meiji is an example of one of intense academic competition among students. Meiji students have been selected from the upper-academic ranks of their respective junior high schools. All of them have shown themselves to be persistent students and excellent test-takers. Students at Meiji noted that competition with friends motivated them to study, but that friends also helped each other to study. I asked one Meiji study how friends affected her studying? She replied: "I don't want to lose to them. So we have mutual competition." A male student at Meiji said that friends: "... will help me when I don't know something. Also, when I see a friend trying (*gambaru*) then I try hard."

Rather than trying to do better by undermining others, students at Meiji and other advancement schools participate in a culture of mutual striving. While students may be rivals and compete to see who gets the highest test score, this rivalry is secondary to the competition over entrance to high school or college, which takes place on a city, prefectural, or national level and where students do not see themselves in direct competition with classmates. Teachers reinforce the sense of mutual struggle by comparing class grades or averages with city or national averages. Students know their own future will be decided by their performance on the test, but they see themselves not in direct competition with their friends, but competing in a large pool of applicants. Students perceive peer performance as a benchmark for their own work, and they try to stay abreast or just ahead of the group.

At every level, teachers try to instill this mutual spirit of competition and cooperation. Parents hope that their child will make friends with a group of motivated, bright students:

> As parents we look and say 'Oh, if he hangs out with that kid, won't his grades go down?' So you hope, you think about. ... But there are various kids, various abilities. As for my boy, I hope that he will be influenced by clever friends. (Shimogawa parent)

When students reach the upper two grades of junior high school, they begin to associate more with peers who will go to the same high school. Academic achievement appears to become a factor in friendship formation. At junior high school some students may compete to do little, but others may compete to see who can be the best. Overall, at the junior high school level, groups of students who urge each other to do poorly in school or to ignore studying seem to have relatively little effect. For the most part, most students who have just entered junior high school follow the admonishments of teachers and parents to study. But, as they progress in junior high school, some fall further and further behind. These students, who know they will not do well in the coming academic competition, tend to distance themselves from school life and academic competition.

Studying and asobi nakama. In the most serious cases, where students become altogether alienated from school life, friends provide significant negative influences on attitudes toward studying and school. In these situations, teachers commonly refer to groups of students as *asobi nakama*, which means a group of friends who relax together rather than study. Often these friends are older students who are no longer enrolled in school or who have stopped studying. As such, they have time to hang around, take part-time jobs or engage in other leisure (*asobi*) activities.

At Arata, where there is a mixture of students, some well on their way to entering elite colleges and others settling for training schools, the effect of *asobi nakama* can be substantial. While some teachers mentioned that students urged each other on to compete, most expressed fears that friends who were interested in "playing" would pull other students away from studying. One teacher described this situation:

> Yes, it is easy to get in with students whose character tends toward making others goof off. [One student may say] 'I need to study,' but his friends want to play. They get carried along with their pals, then they may refuse to come to school or participate in class.

In schools like Naka Vocational a main concern of both teachers and parents was that their son or daughter would fall in with a group of students or adults who have given up on school. Teachers feared that students involved with *asobi nakama* would never finish their studies. One teacher observed:

> These groups have a strong effect on studying. A lot of students have adult friends, and so without studying they drop out [of school]. Their grades get bad. We have a lot of these cases now.

At the junior high school level, the influence of friends who have dropped out of school is even more dramatic. According to the students and teachers with who we spoke, at this age (15 or 16) there are few employment opportunities for students

who have dropped out of school. While high school students may find part-time jobs or gradually be absorbed into working-class life, students who become disconnected from school in their junior high school years have nowhere to go. Teachers refer to these disconnected students, even though they may still come to school, as dropouts (*ochikobore*). At Midori, one teacher said:

> For example, there are these special kids. They have no connection to school. That is how they feel; they don't have any concern about studying. This starts around the second semester in the second year [of junior high school]. They are 'dropouts' you see.

While few students in Japan dropout in the sense of failing to attain a high school degree, the number of students who have a sense of inferiority in studying or test-taking increases with each grade. A relatively small percentage of junior high school students (about 1 to 3 percent depending on the area) fail to enter high school and find themselves forced to take on part-time menial jobs or enroll in some kind of training school (Monbusho, 1993). A few of these students in Naka spend their days riding around their former schools on scooters, which they have modified to make greater noise, trying to gain the attention of their former classmates and teachers. Sometimes at Naka Vocational, the roar of scooters would drown out the voices on the tape.

Dating

Dating was forbidden at all of the junior high schools in this study, and most parents and teachers believe that few junior high school students date. Parents, teachers, and students alike agreed that dating does not play a part in the lives of the vast majority of junior high students. By definition, junior high students who are dating are junior high students with problems. When I asked junior high school students about dates, I was greeted either with silence or nervous giggles. Junior high school teachers were willing to talk about dating among the students, but virtually all said that only a few junior high school age students go on dates.

At this age, students generally evince an interest in the opposite sex, but have little unsupervised time to meet with potential boy or girl friends. The general disapproval of dating at this age also makes it hard for couples to get together. So, early adolescents express their affection in various ways. At the junior high school level students meet in groups to "chat after school, or go to each other's house for studying." The public libraries in Japanese cities are an excellent place to observe this type of interaction. Both junior high and high school students go to the libraries in great numbers on Saturday afternoons. Large tables are filled with mixed groups of girls and boys. While ostensibly studying, the talk may turn to the latest television show or music group.

Public displays of affection among junior high school students are very rare in Japan. No one on our team observed junior high school students holding hands inside or outside of school. However, young adolescents may exchange gifts to show their affection. One teacher at Shimogawa said:

> When they go off to different high schools they give each other things as remembrances. The boys take a button off their uniform. The girls write their name and a message on the collar of their school uniforms.

The fact that dating is greatly discouraged for junior high school students does not mean that boys and girls are uninterested in dating or sex. Many of the magazines and comics that students were observed reading carry stories of love and romantic involvement. Many of these comics (*manga*) also carry material that would be considered pornographic in other countries. But these materials tend to differ depending upon the age and gender of the audience. In general, our review of these materials showed that comics aimed at junior high school students have less explicit sexual material than comics for older adolescents. Comics aimed at adolescent males also have more violent or sexually explicit stories than comics aimed at females. Many of the comics read by adolescent females tend to focus on complex romantic stories.

In high school years, dating is not uncommon. Dating is still technically against school rules, but because of the increased independence and mobility of high school students, schools can do little to enforce this rule except to forbid public displays of affection within the school grounds. The teachers interviewed perceived students who were more interested in dating or socializing outside of school than in their club activities as less serious students. While many high school students participate in clubs and date, the image among adults is that students who date do not have the kind of concentration it takes to succeed in getting into a good college. However, Japanese high school students appear to take advantage of their independence and increased social contacts to begin to experiment with dating. A young teacher, in her second year at Arata, said that because of her youth the female students would confide in her about their dating woes:

> Interviewer: At what age does dating start?
>
> Teacher: Mostly with the first-year students. In their world, anyone will do. [She laughs] They just want a 'special someone.' I am a relatively young teacher, so the girl students sometimes come to talk to me. 'Miss W., I think that guy is nice but what do I do?' 'What should I say?' If they try going out with a boy and it doesn't go, they will report it to me. Then after one or two weeks, they start thinking someone else is nice and they think about him. This keeps repeating itself.

Dating occurs at all types of high schools, but because Naka Vocational is virtually an all-male school, the students there had fewer opportunities to meet dating partners.

In a survey conducted by the students at Naka Vocational, about 100 boys said they had a girlfriend and over 550 said they did not. At Meiji, dating seemed much more common, probably because the ratio of boys to girls was much more even.

Even at the high school level, students were rather reticent about discussing their dating life. One high school student at Kita did share his dating experiences with me:

> Student: We go to coffee shops and places like that. We talk and have tea, or have dinner together.
>
> Interviewer: Since you don't work, where do you get money to spend on dates or when you go out with friends?
>
> Student: I get an allowance. I make do with that.
>
> Interviewer: How much is it?
>
> Student: 10,000 yen [about $100 per month]
>
> Interviewer: What else do you do on dates?
>
> Student: Well, yesterday, school was over at 3:30. We went home together and had tea. Sometimes we go to my house and study.

The dating behaviors that students and teachers described tend to support the notion that while Japanese students may have easy access to magazines and comics with explicitly sexual material, not many students are sexually active in junior high school or high school. The students surveyed at Naka Vocational listed sleep first and sex third as the things they most wanted. Getting accurate data on students' sex lives is difficult in any country, and it is especially difficult in Japan, given the fact that junior high schools and many high schools forbid dating. The teachers I talked to at Arata and Meiji thought that some students were having sex, but they believed this to be a small percentage. A survey of Japanese high school students in 1987 found that 11.5 percent of males and 8.7 percent of females reported having been sexually active, about the same percentage found in a similar survey found in 1974 (Shimazaki, 1993); 33 percent. At this age, students who had part-time jobs appeared to have more adult attitudes toward dating and sex.

It is likely that students who are on the academic track to college are more circumspect in their dating and sexual behavior. As one young teacher put it:

> For example, if a girl did get pregnant, it is a frightening thought, especially for the boys. They have to take care of the baby. They can't depend on their parents. They would have to quit school. If they think about those things, they end up not doing it. I think there are students who are having sex, but it doesn't come out in the open.

Students who are sexually active and in school advancement tracks must risk a good deal. An untimely pregnancy could dash the future hopes of both the male and female. Teachers generally agreed that Japanese students who are sexually active are very careful to conceal the facts from their teachers.

Bullying

Bullying or *ijime* is arguably the top concern of educators and parents in Japan today. My arrival in Naka City occurred shortly after a well-publicized case of bullying (*ijime*) that ended in the suicide of a young boy. This case made national headlines, and stories about it were reported around the world, often linking this suicide with the pressures to conform that children face in Japan's highly competitive system of education. The *White Paper on Youth* recorded around 155,000 reported incidents of bullying in 1985. The levels of reported bullying have fallen sharply since then with only about 23,000 cases in 1992 (Somucho, 1993,: 230).

Bullying has been widely regarded as a problem of early adolescence in Japan, although rates of reported bullying were higher in elementary school than in junior high school up to 1987. Data from 1991 and 1992 indicate that bullying tends to peak in the first and second years of junior high school, but the perception among many Japanese is that bullying is now occurring earlier and earlier. Unfortunately, one of the difficulties for parents and teachers alike in dealing with bullying is that it is hidden. Bullying is carried on in places or ways that cannot be seen by adults.

The hidden quality of bullying makes it difficult for teachers and parents to intervene. One father reported that his son had been bullied in junior high school, but he had not known about it until the boy entered high school. The students at Naka Vocational made the same point. One student said that "teachers don't know" when bullying occurs. Another said that "If it comes out, teachers can do something, but it is hidden." A father at Arata expressed his frustration:

> Students are good at hiding things. They hide things so that the teachers see the good; so every action has to be interpreted. For example, some time ago there was that incident where kids were playing at "pro-wrestling," but they were really bullying. These two actions look the same.

Junior high school boys often play at pro-wrestling or kung fu during the breaks and after classes. These matches are usually just boisterous forms of play, but the father quoted above was referring to a famous case in which a group of boys disguised their bullying under the pretense of playing at pro-wrestling. Given that so much bullying goes on unnoticed, it is prudent to consider that the rates cited above constitute a low estimate of the frequency of the problem in Japan.

Even for the students themselves, bullying is not easy to define. The students themselves offered insights into how difficult it can be to decide if bullying is going on or not. A group interview with students at Naka Vocational yielded the following statements:

> Interviewer: So what do you mean by bullying?
>
> Student: First, fighting words. Then next. . . . If a person is overweight you call them "fat." Then maybe hitting, taking things.
>
> Interviewer: So, if you are called fat, is this bullying?
>
> Student: There's no fine line like that. You say these things when playing . . . it might be half bullying. It all depends on what the person who is called these things thinks. If the person thinks he is being bullied, then it is bullying.
>
> Student: Yes there is (bullying) in our class, but it's in fun. It is hard to say where bullying ends and where fun (*asobi*) begins. It is a personal decision: "This is fun, this is bullying."

Who gets bullied is another difficult matter to sort out. The common perception is that students who are socially isolated, have poor social skills, or who are physically weak are often the targets of bullying. These students are not only weakly connected to their classmates, but are often emotionally unable to cope with mild forms of verbal harassment that other students consider "play." Teachers and parents both perceived that in recent years the number of students who were potential social isolates was growing. These students are also likely to refuse to go to school, another problem which concerns educators and parents. As one of the students at Naka Vocational said: "People who are bullied are isolated. They don't talk to friends."

Another reason for bullying, offered by parents and teachers, is that today's children have few playmates. In the urban areas of Japan, many respondents noted that when children reach adolescence they have not been fully socialized and cannot adjust to the demands of school life. Students do not know how to moderate their behavior:

> "When I was a student, we had many siblings, we had brothers and sisters, we understood the 'rules' (*teido*) of being a student. Like how far one could go. We didn't know about problems of 'going too far.' But students now, well, there are many forms of bullying. In the extreme there is murder, to be bullied to death. We never had that in my day. It is a problem of knowing the limits, like in hitting and fighting. Nowadays kids don't know about fighting."

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Math and Science Classes

One of the basic questions we had at the outset of this research was "What role do math and science have in adolescent lives?" On the surface, the answer is that math and science do not play a special role. We did not find that teachers placed more emphasis on math or science than on other subjects, and on the whole, there was little to distinguish math and science from the larger field of academic endeavor. But, it is precisely in this way that math and science play a very large role in adolescent lives: they are core subjects in a culture that places extreme emphasis on the academic achievement of its students.

When we examine the situation more deeply, it is clear that a student's ability or preference for math and science will have powerful long-term effects on his or her friendship patterns, academic opportunities, and future chances. At the junior high school level, competence in Japanese, English, and social studies is just as crucial as competence in math and science in terms of preparing for the high school entrance exam. However, those students who show more aptitude in math and science will tend to enter academic tracks aimed at science or engineering courses in college. Because of these school divisions, math and science skills become highly important factors in adolescent life.

School Divisions and Mathematics

The strength of students in math and science versus Japanese, social studies, and English will have a great deal to do with the kind of school and course they enter. For students who excel in math and science, there is the possibility of enrolling in one of the nationally funded 5-year high schools (see introductory chapter), although enrollment in these highly selective schools is rather limited. Students in non-academic high schools are also affected by math ability. Some fields use a good deal of math (e.g., electrical engineering), and students must attain a higher degree of proficiency in math and science for them than students in fields like information processing, which do not require strong math skills.

At Arata and Meiji, students were split into liberal arts and science tracks in the second year. The course of studies is altered to accommodate these divisions. For example, in the first year at Meiji high school all students take five hours a week of math. In the second year, students in the liberal arts track will take four hours while those in the science track will take six. Students in the science track will also take more advanced math courses such as statistics.

Teachers and students alike noted that students in the different tracks have slightly different personalities. Students in math and science courses were perceived to be more logical, whereas students in the liberal arts courses were perceived to be more creative or social. Two teachers at Meiji discussed this phenomenon:

> The science students are seen as frank or open-minded. Their way of thinking is logical, mathematical. The liberal arts students are more involved with events, not the science students. They [the science students] don't make social contact with others.

A teacher at Minami thought that "in the liberal arts track, they are very good at memorization. And those in math and science are said to persevere in thinking skills." However a teacher at Arata had a slightly different view: "There are students who study seriously and those who don't. That is where the real difference is—in either liberal arts or science."

Many of the young women in the liberal arts track at Minami "hate math and science" according to the young teachers there. With the increasing division of students, fewer and fewer females end up in the science tracks. One young woman in the science course at Kita High School noted that there was a significant change in teaching styles between the two tracks: "There is a clear difference between science and literature. The science is much stricter than literature. The teachers don't differ so much, but in science the teachers have more of a feel of tension." This strictness or tension may be one reason that many young women dislike math and science and are over-represented in the liberal arts track.

Dislike of Math and Science

It is not just young women who dislike math and science. In recent years, more and more students have come to this position. The phenomenon has been called "hate of math-science" (*risū girai*) as well as "fleeing math and science" (*risū banare*). One teacher at Shimogawa estimated that 50 percent of the students dislike either math or science. A number of students told us in their interviews that they did dislike these subjects, but at the same time students also said they hated virtually every class but art.

It is difficult to evaluate what it means when students say they do not like math or science. One student at Kita High School said about math:

> "I don't like it, but I don't really dislike it. As far as the essential component, the theorems, studying the beginning things is O.K., but then it gets complicated. We get into the last part of the text and the teacher isn't very interesting so it isn't very interesting."

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Teachers at Kita Elementary thought that dislike of math and science started in the early years of school when students could not keep up with their peers in math. After teaching math at the junior high school level for several years, one teacher moved back to teaching elementary school. She thought that the early experiences with math and science largely determined the adolescent experience.

> Interviewer: Well, why do some students dislike arithmetic?
>
> Teacher: Probably, the cause is the inability to understand. In the progression from the lower grades, little by little, the parts that they don't understand increase. For example, in the multiplication table, if they don't understand all of the table at the fourth grade, when they get into larger computation problems, their speed and their way of understanding will be slower.
>
> Interviewer: Why do the "parts they don't understand" increase as the years go by?
>
> Teacher: Probably because these children lag behind in completing their drills. If all students study the same drill, you will find there are those who get it quickly, and those who won't get it after ten minutes. It is not that the student is lazy, it is that they don't comprehend a certain part of the work.

Although math and science classes are not generally oriented to the highest-achieving students, there is a strong sense among students and teachers that as adolescents progress through school, some will fall farther and farther behind in math. One aspect that is particularly troublesome for educators in the non-academic tracks is that many of their students have poor math skills. A teacher at Naka Vocational described the problems of his students:

> Students who have no strength in math have a hard time at a vocational school. They don't know science at all, and they don't think about the process, just the result. Although students in these schools tend to focus on technical subjects, their difficulties with math and science can hinder them from achieving within their specific subject area.

Math, Science, and the General Curriculum

Although there is growing concern that students are becoming disinterested in math and science, there is also evidence to suggest that this may be a more generalized phenomenon. The pressures of the entrance exams appear to play a role in making instruction in the five basic subjects more hurried and intense. As teachers must try to cover as much material as they can in math, science, English, Japanese, and social studies, there is less and less time for experimentation and class discussion. The focus of the classroom shifts from what we might call "discovery learning"—common in elementary school and the first year of junior high school—to lectures, drills, and reviews.

Most of the Japanese teachers and students interviewed in this study said that math and science classes no longer possessed vitality (*iki iki*) after the elementary school years. In such an atmosphere, it is difficult to make any of the mandatory subjects interesting to students who already perceive themselves behind in school or unable to compete. Discovery learning and a sense of excitement and wonder over math and science appeared to lessen as adolescents advance from grade to grade.

Transitions to Work and Higher Education

Regardless of the kind of high school they attended, the students I interviewed said that they would like to work. Some were interested in money, but as one girl at Arata simply put it, "I'm curious." Part-time jobs appear to be associated with increased freedom and independence in the minds of Japanese high school students. These jobs are a kind of intermediary between the adult world of full-time work and the more circumscribed world of the schools and clubs.

Working, like dating, is another activity that Japanese schools generally forbid. At the junior high school level, very few students have part-time jobs, although at Midori and Shimogawa some students were given permission to deliver papers due to their family's economic circumstances. For most high school students, part-time jobs are forbidden by the school, but a survey of high school students in public and private high schools around Japan showed that between 2 percent and 8 percent of students in academic high schools had part-time jobs (Shimauchi, 1995:8). In the nonacademic tracks, however, these percentages are undoubtedly much higher. At Naka Vocational, students did not go to great lengths to hide the fact that they were working part time. The Naka Tech student, whose schedule is displayed in figure 6, got only about 5 or 6 hours of sleep each night because he worked for four hours most evenings or else to driving school. He devoted nearly the whole day on Sunday to working at a local supermarket.

Teachers were more circumspect when talking about the issue of part-time jobs. I asked a teacher at Naka Vocational if part-time jobs were allowed:

> That's a fine point. Part-time jobs aren't allowed, technically speaking. But we have students from all different kinds of family backgrounds, so each section (e.g., chemical engineering or computing), gives permission to work. The most common form is a particularly Japanese one—working at the post office delivering New Year's cards. This is a positive type of work. As the school approved this kind of work, 70 of our students did this last year.

But many Naka Vocational students had jobs throughout the year. In fact, the role of part-time work in the lives of Naka Vocational students was one of the major factors that distinguished their lives from those of the Arata and Meiji students. Without the pressure of the exams or the necessity to go to *juku*, Naka Vocational students were free to try out various part-time jobs. Given the economic circumstances of many of their parents, this additional income—even if it were used solely by the students themselves—was quite welcome. But as a result of their earning power, Naka Vocational students had a greater degree of independence both from parents and the school than the students at Meiji and Arata.

Conclusion: How Are Adolescents Doing in Japan?

In the past decade there has been a decrease in bullying, suicide, and the overall crime rate among adolescents (Somucho, 1993). Reported teen pregnancies remain low, and it is estimated that less than one percent of adolescents imbibe illegal drugs or substances like glue or paint thinner. However, in this same period, there has been an increase in school-refusal syndrome. Combined with growing concerns that students are drifting away from math and science, many of the teachers and parents in this study revealed concern that adolescents are becoming more dissatisfied with schooling (Somucho, 1993).

The Japanese adolescents we met during our fieldwork, on the contrary, appeared motivated and engaged in schooling. They appeared to be materially prosperous, and the high school students exhibited an interest in foreign music, food, and film. As White (1993) has shown, many Japanese high school students are sophisticated consumers with a highly developed awareness of international events and trends. While many of the students in this study said that they were tired or felt pressure to perform, most appeared to be coping rather well.

The pressures produced by the entrance exam, the education system and the culture of testing have undeniable negative influences on Japanese adolescents. The remarkable energy expended on the high school and college entrance exam is evidence that *juken benkyō* is a central fact of life for most adolescents. But, students, parents, and teachers were quick to point out that learning, defined more broadly, is a central human activity in the Japanese cultural world view. Many respondents noted that to stop learning is to decay or stagnate as a person. Such a view of learning implies constant change and re-evaluation, the ability to shift and adapt. In the face of all the pressure to succeed, the vast majority of students still maintain a healthy social life,

balancing the long hours of study with involvement in clubs, hobbies, or going out with friends. Despite adult worries, all of the adolescents we talked to were healthy, active, and had some goal.

Chapter 5

Teachers and the Teaching Profession in Japan

By: Carol Kinney

On a sunny morning in May, Ms. Endo, who is in her eighth year of teaching, finishes a quick breakfast of toast and coffee and assembles her clean gym clothes and a picture of her cat for art class. During the slow drive through heavy traffic, she thinks about ways to help the students get along with the Korean girl who joined their class this March.

Arriving at 8:20 a.m., she calls out a cheery greeting as she enters the teachers' room and squeezes into her seat at the fourth-grade teachers' block of desks. The 5-minute morning meeting ends promptly and the fourth-grade teachers briefly confer. Teachers gather whistles and change their shoes as they discuss the school garden and head outdoors for weekly play period. After announcements, Ms. Endo encourages her students to play dodge ball in their area of the playing field. After 15 minutes, the principal blows a whistle and the field becomes quiet. The four teachers talk about plans for a science experiment and an unexpected absence as they follow students up the stairs.

Students noisily settle into their seats. At 8:55, Ms. Endo begins playing the electric piano. Students stand and sing "Grandfather's Clock." Next, two students lead the morning meeting while she silently grades papers at her desk. Today's facilitators announce arithmetic, and class begins. Ms. Endo ends with a contest between groups using multiplication. Japanese language class follows, and although today's facilitators call out "stand up," "attention," and "bow," students are still talking, so Ms. Endo has them start over. Appearing more prepared, the students sit quietly and begin raising their hands excitedly to answer questions about flowers. Chimes ring to signal the end of class at 10:30. Ms. Endo leaves her class alone in the classroom and joins the other teachers in the teachers' room, where there is a cup of tea and a cookie on each desk, for a 15-minute break. She quickly drinks and eats while several teachers tease a young man about his upcoming honeymoon, then she rushes out to change into sweat pants and tee-shirt. She enters the gymnasium and spends the first few minutes listening carefully to the Korean girl and two other girls who are in

tears, while other students do warm-ups. Physical Education ends at 11:30 after basketball drills and games. Ms. Endo next initiates a class discussion for 15 minutes about respecting differences and getting along together. Then, she plunges into funny stories about her cat to discuss portraying movement in sculpture for a shortened art class. Class ends at 12:15 p.m., 10 minutes early, to allow time to prepare the room for lunch.

Students call "teacher, teacher," asking her to join their group. They all talk and tell jokes during lunch. Ms. Endo then supervises student cleaning in two restrooms and her own classroom. The 1 hour and 20-minute break for lunch, cleaning, and recess draws near its end as Ms. Endo stops briefly in the teachers' room to debate topics at an upcoming PTA meeting.

After science and social studies, the daily student-led "going home meeting" continues until 3:40 p.m. Students slowly pack up their belongings after changing out of their gym clothes at their desks.

Ms. Endo chats with remaining students while tidying the classroom; several girls stand in the doorway giggling. She's hurries to the 4:00 p.m. teachers' meeting, then heads back upstairs at 5:30 to look over student diaries. At 6:30, the school is quiet as she calls out "*o saki ni shitsurei shimasu*" (I'm leaving ahead of you) to the four teachers working in the computer corner of the teachers' room and to the vice principal who is sitting at his desk toward the front. After a 55-minute drive, she arrives home before 7:30 p.m.

Research Methodology

I spent 2 months during late spring of 1995 in public elementary, middle, and high schools in Naka City, Japan—the primary Third International Mathematics and Science Study (TIMSS) case study site. After an initial introductory and scheduling visit to each school, at least 2 full days were spent in each of the nine schools studied. I followed at least 2 teachers in each school for an entire school day and observed their classrooms, meetings with colleagues, break times, and preparation times. Observations began before the morning teachers' meetings and usually continued until after 5:30 p.m. In addition, 12 school administrators, 2 school board members, 2 board of education members, and 20 teachers were interviewed at length in their offices or classrooms. During my time at each school I spoke extensively with other staff and teachers and observed club activities, teachers' after-school interactions, curriculum meetings, and other committee meetings.

At each school the staff selected the teachers to be followed for a day. I expressed a preference to "shadow" one male and one female, one more experienced and one less experienced teacher. In addition, I asked that at least 1 teacher at each school be a math or science teacher, and that the teachers be teaching 4th, 8th or 12th grade, depending on the level of the school. Schools could not always comply with all these requirements because their staffing patterns did not reflect this much diversity or because the teachers in a particular grade had previously spent considerable time with a TIMSS researcher. In most cases it seemed that a teacher who was known to be a good teacher either volunteered or was assigned to me, but due to my request to follow younger, or less experienced teachers, I observed a range of teachers. In the high schools I was unable to interview many female teachers of math or science, mainly because there are proportionally fewer women in these fields teaching at the high school level. All of the teachers I shadowed expressed some shyness before the morning meeting, but none acted as if they minded my following them around. I do not think that any of the teachers I followed were pressured to take part in the study. Most appeared to be speaking relatively free about their teaching experiences, although one high school science teacher seemed slightly reluctant to talk with me after I observed his class until I turned off my tape recorder.

Questions addressed during the interviews and conversations concerned the personal characteristics of teachers, teachers' assessment of their training, the working conditions of teachers, a typical workday, teachers' general views on teaching, and what makes a good teacher. While observing classes I focused on the interactions, instructional techniques, disciplinary actions, and general classroom atmosphere. In the teachers' rooms and other school areas I observed working conditions and the interactions among teachers and between teachers and students. All interviews were transcribed, translated, and coded, and all observations were written and then typed and coded. In addition, interview and observation data from schools in Minami City, Japan collected by Naoko Moriyoshi, and Kita City, Japan, collected by Gerald LeTendre, were used as reference and supplemental materials and are reflected at points in the analysis.

There was a great deal of variation among the schools visited and among the teachers interviewed. The schools varied in the economic background of students and, at the high school level, in the degree to which they were academically challenging. Some teachers were highly energetic in their teaching styles and interactions with students while others were quieter, although all seemed serious about teaching their subject matter to all the students in their classroom. All teachers expressed dedication to their profession, and all expressed hope that teaching would be their lifetime career.

Introduction

According to the teachers interviewed and observed, to become what Japanese teachers consider to be a good teacher requires more than knowledge and skills. Desire, motivation, liking children, and, as an elementary school principal in his sixties told me, wanting to "get those children's bright eyes to shine, to find out on your own how you can best help children," are all seen as essential in becoming a teacher. One elementary school teacher told me that the requirements for a good teacher were that:

> You have to like the work. Of course, experience is also important and various knowledge is also important but if you didn't like it, it would be no good in the end. If you think 'oh, this is awful,' well, it is better to quit this work. Definitely! If you are tired of it, then it is no good for the children, you know.

And the principal quoted above continued to say:

> They don't have things about these children written in a textbook. Only general things are written down. So you use the things in the book as the base and think about each individual as hard as you can and yes, that is a good teacher!

But how do Japan's schools attempt to recruit, develop, and keep teachers who not only are highly motivated and like children but also have the requisite skills and knowledge? The answer was hinted at when a principal told me they must nurture all types of teachers through their various life stages. More directly, teachers and administrators described extensive training opportunities. Equally importantly, according to the teachers and administrators studied, the closely knit communities of teachers in each school that I observed and the continual sharing of information and casual banter that develops along with a regular rotation of teachers, provide an atmosphere of support and learning. Underlying the nurturing, training, and sharing described to me by the teachers interviewed in this study is a sense among teachers that there is some respect for their profession, competition to enter teaching jobs, an adequate salary, work hours that compare favorably to those in companies, chances for advancement and new responsibilities, and job security.

The teachers interviewed reported that they believe their profession is fairly well respected and of above-average pay, although not high paying. Their work lives are busy, but teachers also report some flexibility in their use of time. Teachers report that the amount of time they spend outside of the usual 8:00 a.m. to 5:00 p.m. workday depends on their personality, their goals, and their stage in life. In general, teachers reported that they are both responsible for and in control of most of what occurs in their schools. Although both teachers and administrators described a few circumstances when administrators assert control and assign teachers to tasks or

schools that were not requested, teachers see most assignments as part of what they expected when they became teachers. Teachers are generally required to be at their schools for at least 8 hours a day. Junior high school and high school teachers usually only teach 4 of the 6 hours of classes each day. Elementary school teachers sometimes teach more class hours and are expected to be at school for planning, meetings with other teachers, advising students, and socializing for about a half-hour before classes begin in the morning and for at least an hour after school ends in the afternoon. Most teachers reported that they do all their school related work at the school, which contributes to much interaction between teachers.

Almost all teachers have graduated from 4-year universities and are required to have taken many credits in their area of specialization. Teachers interact with other teachers, attend in-service training, and many voluntarily participate in small research and study groups. Novice teachers are assigned formal mentors during their first year on the job. The teachers interviewed reported that throughout their teaching years they look to other teachers for guidance and help. Teachers told me they feel they are effective at the basic tasks of teaching, and they described being explicitly taught about lesson planning, the use of materials, and more basic skills such as how to write on the chalkboard. A variety of teaching techniques and presentation styles were observed and most teachers demonstrated a substantial repertoire of methods. Most teachers interviewed expressed a desire to improve themselves and their ability to reach out to all students.

Teachers reported and I observed that when discipline problems occurred, teachers attempt to get students to resolve problems among themselves and to discuss disagreements. Usually a homeroom teacher initially addresses a discipline problem and then, depending on the severity of the infraction, the head grade-level teacher, other homeroom teachers, or administrators may also be asked to get involved. No teacher expressed a sense of powerlessness in the face of student misbehavior, although a few described schools that had more severe disciplinary issues and how staff changes and other structural interventions helped improve those schools. Minor infractions, such as making a joke or talking out of turn during a lesson, were tolerated and even indulged. According to my respondents, enjoyment and social development are seen as important goals for students during the schoolday. I observed several teachers engaging their students in enjoyable, nonacademic activities such as story-telling, games, and play activities outside during nice weather, even during regular lesson times.

Especially in elementary schools, but also in junior high schools and high schools, teachers reported that they saw the purpose of education as guiding students to become more fully developed human beings. All the schools I observed included times for enjoyable interactions through scheduling 10 minutes or more of free time between classes or after lunch, encouraging students to interact with their friends on

school property before and after school hours, planning school trips and other outings, and all-school participation in special school events such as festivals, music contests, sports exhibitions, and other activities.

The Job of a Teacher in Japan–the Basics

Teaching in Japan provides adequate pay, some respect, and, compared to many Japanese companies, high job autonomy. Average monthly salaries for Japanese teachers, excluding other benefits, were ¥309,400 for elementary, ¥305,700 for junior high, and ¥330,400 for high school teachers in 1992 (Ministry of Education, Science, and Culture, 1995, p. 121), salaries that compared favorably, especially for female college graduates, to the average for college graduates in that year: approximately ¥397,000 for men or ¥268,000 for women across all industries (Statistics Bureau of the Management and Coordination Agency, 1995, p. 112). The average starting salary for elementary and junior high school teachers was ¥180,000 per month compared to the average starting monthly base salary for college graduates overall of ¥187,000 for men, and ¥180,000 for women across all industries (Statistics Bureau of the Management and Coordination Agency, 1995, p. 112). Approximately 58 percent of elementary and 36 percent of junior high school teachers were female in 1992 (Ministry of Education, Science, and Culture, 1995, p. 119). In Naka City in 1996, the recruitment brochure of the Naka City Board of Education listed teachers' starting monthly base salary as ¥229,300 (approximately $2,290 at a ratio of ¥100 to one dollar) for kindergarten, elementary, and junior high school teachers and ¥231,000 (approximately $2,310) for high school teachers. In addition, like many full-time employees in Japan, teachers receive a bonus equivalent to 5.2 times their monthly salary (¥11,920,360, or almost $12,000) divided into three bonus payments in December, March, and June. Although elementary and junior high school teachers are hired by the local city, town, or village, prefectural governments pay half of all salaries in order to ensure uniformity of compensation within the prefecture. The compensation in each prefecture is based on the pay received by national school teachers, which is specified by national law (Ministry of Education, Science, and Culture, 1995, p. 121). Teachers are also eligible as civil servants for extra monetary allowances for dependents, financial adjustments (such as cost of living), housing, transportation, assignments to outlying areas, administrative positions, periodic costs (such as those incurred when traveling with sports teams), and diligent service.

The average length of service of teachers in Japan at the elementary, junior high, and high school levels in 1992 was between 15 and 16 years. The average teacher is about 40 years old; less than 20 percent are under 30 and only about 10 percent are over 55 years old (Ministry of Education, Science, and Culture, 1995).

Teachers must pass rigorous examinations to become teachers, usually taken after graduation from a 4-year college program. Graduates from teacher-training universities included 63 percent of elementary, 43 percent of junior high, and 20 percent of high school teachers; the rest graduated from general universities. Approximately 20 percent of elementary, 10 percent of junior high and 3 percent of high school teachers have 2-year degrees; the rest have at least 4-year degrees (Ministry of Education, Science, & Culture, 1995). In order to obtain a teacher certificate of first class, held by all teachers with a bachelor's degree, elementary school teachers must have a minimum of 18 college credits in their specialty subject and 41 college credits in teaching. Junior and senior high school teachers must have 40 college credits in their specialty subject and 19 college credits in teaching. For example, a junior high school teacher of mathematics must take at least 40 college credits in mathematics including 20 in some combination of algebra, geometry, analytical geometry, probability and statistics theory, and computers. Elementary school teachers are required to have taken a minimum of two college credits each in Japanese language, social studies, arithmetic, science, life environment studies, music, art and handicrafts, homemaking, and physical education (Ministry of Education, Science, & Culture, 1995). Although universities design their own teacher-training courses, the Ministry of Education, Science, and Culture, or *Monbusho*, certifies courses and provides oversight of the content of the courses and the teaching faculty at all certified universities. Teachers and administrators are able to focus on motivation and liking students as key qualities for becoming a good teacher partly because the academic standards attained by all prospective teachers in Japan are high.

It is hard to determine the level of prestige and respect that comes with the profession of teaching. A few teachers I interviewed complained that they are often blamed for many problems ranging from bullying to academic competition to students' lack of interest in their futures. However, many argued that although societal respect for teaching has declined, it is still a respected profession. Although students and parents may believe that the effort put forth by students is more important for achievement, teachers regard their teaching skills as essential, and they hold themselves and their colleagues to high standards of work. I found many teachers continually striving to be well-rounded models and competent teachers for their students. Despite relatively high levels of support, training, and respect, teachers were quick to wish for even more support, criticize training as too systematic, bemoan the fact that sufficient training does not occur in every school, and state that the status of teachers cannot be taken for granted. When asked directly about whether they feel the profession of teaching is respected, my interviewees generally answered that it was still a respected profession but not as much as long ago. The following excerpts are from a conversation with three fourth-grade teachers about the level of respect for teachers in Japanese society today:

> Mr. A: If I'm outside, like on the subway, and it happens that a child comes up and says "sensei!" (teacher) to me, right? I don't like that.

Interviewer: Why is that?

Mr. A: I wonder. Somehow, to be thought of as a teacher, I don't like that. I feel that maybe that means I don't think my position is being seen well by society. Maybe it is because I don't think of it as good work.

Ms. B: I really don't like that. I can't quite explain it fully to everyone, but it would be good if how busy we are could be understood. No matter how I'm seen, if I am trying as hard as I can and satisfying myself, I end up thinking that society doesn't totally grasp or understand our work.

But Mr. A concluded that it was a dignified profession, after a long discussion of many aspects of their feelings about being referred to by students as "teacher" in public:

Mr. A: Parents think that those who teach their children are socially very important. When I go home to my own area, everyone knows that I am a teacher. If there is some problem, something in the neighborhood, like they need advice on the baseball team, or anything, they quickly come to me and ask me to do it. It's OK when you have a kind of dignity. People don't think "Oh, he's a teacher" (said in a negative tone of voice). It isn't necessary to feel inferior. What I said earlier about being embarrassed when called "teacher" on the subway, that is somehow different. I guess I am just a bit shy.

Although these teachers do not necessarily like to be pointed out in public, they are still viewed as reliable people in their neighborhoods and are asked to be community representatives or leaders, which indicates a degree of respect for their position. These elementary school teachers believed that high school teachers were highly respected.

Teachers' Lives

Despite the overall uniformity within Japanese education, the backgrounds and views of these teachers provide a different picture from one of homogeneity. Partly this was due to my requests that, if possible, my interviews and observations be scheduled with both male and female teachers and both veteran and newer teachers. Since I was the last of the members of the team doing research in Japan, the schools had hosted at least one previous researcher. This meant that I sometimes was scheduled with the most reluctant, the busiest, or the least involved teacher, since these teachers may have not participated earlier. Partly, too, the diversity reflects the population of teachers who are a well educated, generally creative group of individuals who have chosen teaching for a variety of reasons, often including not wanting a typical business job.

Teachers' responsibilities and the amount of time they spent on school activities were related to interests, abilities, and experience, and also to home situations. In a society where men still do little of the housework and child care, working mothers must spend more time on home-related work and less time on school-related work. One principal told me that it was important, however, to have various types of teachers at different life stages because children need many kinds of role models. He did not seem to mind the fact that women with young families could not spend as much time at school as teachers in other family situations and stages.

Elementary school. In general, a teacher is assigned to one class and follows that class for two years and is then assigned to a new grade the third year. Teachers reported that they enjoyed and felt they learned a lot about students through rotating the grade they taught from year to year. Most thought it was essential to teach all grades. Although it appeared that over time more men taught fifth- and sixth-grade classes and that women were more likely to teach first and second grade, almost all teachers had experience in all grades.

Several teachers were quite involved in activities outside of their current elementary school. These activities included involvement in many science research groups—where they share lesson plan ideas, observe or present model classes, and learn about new teaching ideas through reading and speakers—and on committees such as one creating a supplemental text for fifth-grade science teachers. Another teacher, in his early thirties, was planning a tour of schools to learn more about how history was taught in elementary schools in Switzerland and Germany. The prefecture provided funds for an interpreter for this trip, and the teacher was planning to visit local schools, national libraries, and international schools. He arranged all plans for his trip on the basis of his research interests. It was evident that involvement in the prefecture, and recognition by other teachers and administrators, could lead to interesting research possibilities for teachers outside of the classroom.

The route to administration, which involves recognition beyond one's immediate school and participation in research activities was being pursued more frequently by male than by female teachers among my interviewees. This was partly due to the time required of women for raising a family. According to several respondents, women's work at home often precluded their attending regular evening meetings and spending the extra time at school needed for these additional activities.

Academic backgrounds also varied for some of these teachers. For example, one teacher had continued as a graduate student in science and spent three years as an instructor at a private high school teaching geography after college graduation. During college (he took extra years to finish university because of his outside activities), he worked for seven years in a private after-school preparatory school (*juku*) at-

tended mainly by junior high school children. He described his experience and ability as follows:

> *Juku* costs a lot of money, right? So if you are no good, the children all leave. They come depending on your reputation. At that time, teaching junior high school students, I wasn't teaching science, I was doing math. Math. So you might even hear the name 'Suugaku no Nomura' (Math Nomura), I got that famous. And there was the 'Nomura method.' My math study plan. I made that, and made a manual. . . . And I made it stylish. After that, I became a teacher and began teaching in elementary school.

Another teacher defined herself by telling me that she had "only" majored in kindergarten education (a 4-year college program) and did not have a "real" major, so she said her teaching style was somewhat childlike. To the contrary, it seemed to me that her spirited way of interacting with her class conveyed both respect and fun and showed a real talent for acting. For example, at one point, as a way of introducing an art project involving making clay animals, she demonstrated how her cat lets its needs be known using amazingly realistic motions and poses. Her point was that their models were supposed to convey actual animal movement through the pose chosen, and her acting out of her own cat's movements made her meaning crystal clear.

The teacher who was about to travel to Europe is a Japanese history aficionado who finds multiple ways to bring his advanced knowledge into his elementary school classroom. When I visited his class he concluded his social studies class on the fourteenth-century shogun, Ashikaga Yoshimitsu by asking students to discuss whether he was a good leader or a bad leader. The sixth-graders were spirited in their defense or attack of Ashikaga. Through bringing in original materials, such as copies of letters written by Ashikaga, and reminding students that Ashikaga had built the spectacular Kintakuji (Golden Temple) in Kyoto that they had recently visited on their school trip, this teacher made history relevant. He showed me the model weaving machine and bow and arrow he had made and brought in earlier in the year to coincide with study of earlier periods in history. He explained that his busy schedule also involves helping to organize children centered exhibits at the local museum and summer history workshops. His love of sharing his subject with children was obvious, and he seemed to be a very effective teacher. More than any sense of uniformity among teachers, their individual interests and approaches to teaching stood out among the sample of teachers interviewed, and their experiences as a teacher also varied since each teacher was involved in some school-wide and prefecture-wide committee work.

Junior high school. The junior high school teachers I interviewed and observed were also a diverse group. At Chuo, the junior high school of the highest academic and economic level in this sample, I interviewed another male teacher in his thirties

who was scheduled for a two week trip to Australia for research, sponsored by the city. At Midori, the midranking junior high school, I interviewed two teachers who were almost polar opposites in their approach to work. A male social studies teacher in his fifties reported that he works late evenings almost every night, either at the school or at various research meetings, and heads the group of third-year teachers at the school. On the other hand, the female math teacher, who arrived at this school in April, has two small children and a husband who, in her words, "doesn't help with the children at all." The school had given her a lighter load for this year and she did not have homeroom responsibilities. She usually arrived just before the morning meeting at 8:30 a.m. and left in time to pick her children up from day care by 5:00 p.m. Although her classes were well prepared and effectively managed, she saw her time in school as a break from her busy home life and housework. At Shimogawa Junior High both teachers I observed had 6 and 7 years of teaching experience, respectively, but they had different academic backgrounds—the English teacher was 26 years old and had only a 2-year college degree while the science teacher was in his early thirties and had 2 years of graduate work in science.

There was a variety of responses to teaching. The young English teacher wondered how long she could keep up with the pressures of teaching. She reported that although she loved her job and felt privileged to associate with other teachers and to teach students, she wondered how she would find the energy and time to keep teaching if she were to marry and have children of her own. The older social studies teacher devoted almost all of his time to teaching and seemed to take extreme satisfaction in all aspects of his job—teaching his homeroom class, organizing the parent-teacher association, supervising the 3rd-year teachers, running the tennis club for girls, and being involved in many out-of-school meetings and activities. He often worked from 7:00 in the morning until 10 or 11 at night.

High school As has already been seen in previous chapters, there are great differences between the three high schools. Because of the rotation system, which requires teachers to change schools about every 6 years, many teachers had taught at several types of schools. Most high school teachers teach three to four classes a day and have free periods in between. This schedule made it possible for me to observe and interview teachers and administrators during the school days and then spend the after-school time touring the schools or watching teacher meetings or student club activities. I focused almost exclusively on math and science teachers, interviewing nine. I observed eight different teachers' classes as well as briefly sat in on classes in the technical subjects at Naka Vocational. At the high school level I was unable to follow women teachers, mainly because there were not as many female science and math high school teachers—approximately 21 percent of Japanese high school teachers are female, and even fewer teach math and science (Ministry of Education, Science, and Culture, 1995). The head of the science department at Meiji High School was a woman, but she was out of the school on school business during most

of my time at the school. Two of the women teachers who spoke with me at length were nonpermanent staff members. They taught a full course load but were not considered full-time and did not participate in committees or lead homerooms. Both of these women described family circumstances that had forced them to resign their permanent teaching jobs—one due to her husband's transfer overseas and one because of a parent's illness. They could not be reinstated as permanent teachers without retaking the extensive employment examinations.

The high school teachers were a diverse group. They included a man in his early forties who had spent three extra years at a top ranking national university because of his involvement in a Noh drama club. He then spent several years teaching in a city with a very active teachers' union before moving back to his home town of Naka, where the union is less active. Both his union experience and his time spent at university during the late sixties made him willing to be different and buck the system at times. Another teacher in his late thirties reported that he spent much of his free time studying methods for teaching mathematics at the local national university and giving lectures on mathematics to community groups. His energy seemed boundless and he eagerly presented his ideas for practical computer classes to the math group meeting at a school that mainly is preparing for examinations. He and another math teacher and I went for dinner after school and he spent the entire meal discussing innovative mathematics puzzles that can be used to teach basic math concepts to students. During the mathematics section meeting, I observed he enthusiastically described new courses he wanted to develop, particularly a section on advanced computer usage. The other eight math teachers listened respectfully but clearly were not as enthusiastic about courses that were not directly related to college examinations. The meeting did encourage a substantial exchange of ideas about the purposes of mathematics education at this competitive high school. The teachers I questioned afterward reported that it had been a typical meeting and that the discussion would become more heated as the time for developing the following year's curriculum drew near. It seemed that the variety of opinions and approaches among the teachers led to indepth discussions about the reasons for any given teaching method.

Another teacher had 35 years of experience in teaching and had been at Naka Vocational High School for 20 years. He had five grown children of his own and seemed to have great patience for encouraging students in the lower-track vocational school. An expert teacher, he cultivated an atmosphere where the math teachers felt comfortable asking to observe each other's classes and having their own classes observed. In his last year before mandatory retirement, he also was continuing to challenge the other teachers to not spend too much time just talking, but to actually help students. In this school, too, I observed a rather confrontational mathematics teachers' meeting where the four teachers debated how to address the problem of high school dropouts. Teachers' different outlooks and experiences led to an interesting argument about how the problem was best approached.

Reactions to the Researcher

I spent one full day with each of two teachers at the six elementary and junior high schools and was able to discuss most issues with them when we sat down to talk, usually around 5:00 in the afternoon, after a hectic, but seemingly usual work day. At the high schools I focused on two to four teachers, but also interacted with other teachers in the teachers' room during class periods when not observing classes. Meiji High School and Naka Industrial High School both scheduled more opportunities for interaction than I had anticipated, including meetings with former principals, opportunities to sit in on student-teacher training, chances to observe similar classes taught by different teachers, and guided tours of all the technical divisions at Naka.

Almost all the teachers appeared to be eager to hear my comments and questions about their jobs, and many stated that they welcomed the chance to reflect upon their work. For example, one teacher told me at the end of our day together that it was "a good chance and I have also gotten to reflect on various things. I am really grateful." The two teachers observed at Chuo Junior High insisted I come to an elegant coffee shop with them so we could continue our conversations after I finished, because they were enjoying the chance to reflect on their teaching. They proceeded to discuss the merits of various study patterns among students and the problems with a new examination system. This type of discussion of methods of advising and teaching students seemed to be something in which they often engaged, and they told me that they had these discussions regularly.

Several teachers compared my presence as an observer to more formal teacher-training classes, which entails massive preparation. Naoko Moriyoshi, who observed in another site in Japan for this project, described such a thoroughly prepared fourth-grade science class and wrote in her notes, "other teachers also observed the class, and the presenting teacher seemed somewhat nervous. He had prepared a class plan and distributed it to every observer." About a 10th-grade math class observation, Ms. Moriyoshi concluded that the teacher was nervous and the students seemed subdued due to the 10 observers in the classroom. There appeared to be other differences between Moriyoshi's description of classroom activities and what I observed. She observed no chaotic-seeming classes and saw less individualized instruction and was generally given handouts detailing how all activities were related to specific learning goals. I was told that teachers generally did not make detailed lesson plans. I observed both carefully structured periods of teaching and more chaotic moments. In addition, most teachers told me they were not nervous and the students seemed to be energetic.

Although a few teachers wrote a brief outline of what they hoped to teach, I always observed alone and never saw an extensive lesson plan. Indeed, most teachers told

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me that although they have a general lesson plan that they make at the beginning of the year and review periodically, they do not write out a specific plan for each class period. Two veteran high school teachers openly told me that their only memos to themselves regarding each lesson was a mark in their textbook showing the date they had finished that page the previous year. This statement downplayed their preparations somewhat, since they both used mimeographed handouts that they had prepared over the years. They revised these sheets depending on the progression of material and the current class's needs. This amount of preparation seemed typical among teachers with more than three years of teaching experience. Teachers reported having spent many hours on each day's lesson plans during their early years of teaching.

Why Become a Teacher?

Some teachers had dreamed of being a teacher since elementary school, others just happened into the career, and still others carefully plotted their career entrance based on their calculations of the types of colleges they could enter, the stability of the job, or even health problems. In addition, several mentioned family influences and a few mentioned the influence of teachers, although both good and bad teachers were the source of a desire to become a teacher. Excerpts from some of the responses show both the idealistic and pragmatic reasons for teaching.

The teacher mentioned earlier who had been a successful *juku* teacher had made a lot of money and had great independence. He also stated that he had considered entering politics and felt he was well-known enough in the city to have won a local election. I asked why he wanted to become a regular school teacher, wondering if maybe it was because teaching is a more secure profession. He responded:

> That didn't really matter, and it wasn't because of money. It was, I guess, because as I said before, I wanted to do broadly-based education about science. And now, in fourth grade, we can do that. When it rains and things, we can use that text (the fifth-grade text he developed as a science supplement for teachers). And it is really interesting. . . . And of course, as for politics, if you don't put all your energy into that, you don't go forward. I decided not to go into basic research and I'm not particularly good at politics, so I decided to do education.

This teacher's route into elementary school teaching involved doing graduate-level science research, teaching part-time at a high school and in a *juku*, and attempting to raise funds for community education. He entered elementary teaching with considerable experience in teaching and in science. His decision was partially based upon idealism about the contributions a public school teacher can make. However, his education and abilities provided him with many options other than teaching.

His female colleague's experiences and reasons for entering teaching, however, were quite different. She rather self-deprecatingly told me, "well, my major (in college) was kindergarten education. Yes, and without becoming a kindergarten teacher I came to elementary school, so, I don't have one, a major, for elementary school. So, I always feel embarrassed." This initial statement emphasizes how even though she has a 4-year college degree from a respected university, and she was respected as a teacher within her school, she still felt less qualified than many of her colleagues. She went on to say that her basic motivation was her love of children. She described her sister who is a clerical assistant in a large company and said that sometimes she envied the way her sister could take time off and travel, arrive home by 5:30 p.m. every day without work to finish, and call in sick when necessary. Even so, she still was glad she was a teacher, a profession in which she could use her creativity and be around children.

Another female elementary school teacher who majored in Japanese language (*kokugo*), mentioned her love of both literature and children. She immediately began talking about how a book she read as an elementary school student convinced her that she wanted to become a teacher. From that very early decision point she pursued her dream and became a teacher.

One of the elementary school teachers came from a family where both his mother and his father were junior high school teachers, so he knew about the demands on teachers. But he first told me, "after all, as a boy, I really rebelled against my father, so during junior high and high school I really didn't want to be a teacher." He made his decision when he was 18 and deciding on a college. Initially he wanted to become a junior high school teacher and have more time to pursue his major, Japanese history. He was initially assigned to an elementary school despite his expressed preference for junior high, and now he says he prefers elementary school. The work must have appeared to be sufficiently rewarding, and his parents must have felt it was a good career if they encouraged their son to follow in their tracks.

One elementary school teacher entered teaching after realizing his own privileged position when he passed the college entrance examinations to a teacher's college and a close friend did not:

> In my diary from my second year of junior high school I wrote that that is what I wanted to do in my future (become a teacher). When I entered high school I had forgotten that and thought I would become a usual office worker but it just happened that the university I got into was that one (referring to the education university he attended). And my friend from high school had parents who were teachers, and from the beginning he had wanted to be a teacher. Once I took the exam and got in and my friend who wanted to get in failed, then I thought I had to enter and be serious.

An older high school teacher described a different set of circumstances based on his health and seeing higher education and teaching as less strenuous than other kinds of more manual work:

> I went to (a national) university in arts and sciences and studied educational things. The reason I entered that, well, it was because my body wasn't very strong. And my home wasn't very well off, so I took the examination for Japan National Railways. And I did well. But as I began working I realized that it was no good because my body was so weak. And in order to make my body stronger, more than to become a teacher, that was my reason for entering college. But I didn't get better and realized that I would have to do something on my own so I entered a judo club and was knocked around like a toy. The good thing was that I did a job search and got a job teaching at a school and the school was on an island. I worked with the judo club and I've done that all along.

Within the sample of teachers as a whole, most men had also considered other careers while the women remembered considering only the profession of teaching. Teaching provides a stable job with a chance of advancement and relatively good hours, but some of the men chose it only after realizing they would not succeed in fields such as engineering or research science. A few, like the teacher quoted above, chose teaching after deciding they were not strong enough for more physically demanding jobs.

Expectations of Work and the Work Itself

Most teachers mentioned some differences in what they expected a teaching career to involve and what they actually do at work. In general the biggest surprises were due to the heavy burden of duties other than actual teaching. For example, teachers are expected to be heavily involved in committee work within their schools and to attend various research groups and training sessions in and out of their schools. Most Japanese teachers are homeroom teachers which involves being a counselor to the children in that class and keeping all the records for those students–usually 40 to 45 students. In addition, teachers are expected to go on school trips and class excursions with students, take part in daily cleaning activities, supervise clubs after school hours, and eat lunch in their homeroom with students. Elementary school teachers are expected to visit the homes of students in their classrooms at least once a year, while junior high and high school teachers also visit homes whenever anything is amiss. While many teachers-to-be have some awareness of these demands, most expressed surprise over the amount of time the tasks take and particularly the amount of paperwork and bureaucratic work required.

Many teachers entered teaching from fairly sheltered, middle-class lives, and with good educations, and they were surprised by the experiences of their students. A typi-

cal response was given by a math teacher who described his first 4 years of work at a night high school before he was transferred to Naka Vocational High School:

> It was a good experience I think. Those (students) who get in are a bit different you know. Their grades, that is one thing. And well, their personalities, things about rules. Somehow they really are the lower level. The families, ones that are broken or something and also fathers who only drink alcohol all the time and things. Those kinds of things, for the average person, are things you would hardly ever see. So I didn't know that kind of society at all. It seemed like a different place, you know. Like what you read in a book. Those kinds of families have knowledge of things you usually only read about in a newspaper. Of course everyone knows that night high schools exist, but almost no one knows anything about that sort of school. The society doesn't really see them. I feel as if I received an education there.

A junior high school teacher also commented on this exposure to a world many individuals would not normally see and drew a conclusion I heard from several teachers, "I realized that I came from a lucky family. I had a family and lots of preparation for studying, and was sent to college, and all my food was prepared for me."

Learning about the diversity within their own society seemed to be an essential part of being a teacher. This experience is a part of most teachers' lives because of the rotation system. A junior high school teacher described encountering students he had not anticipated meeting during his first assignment at a lower-track private high school:

> Even when I was giving them guidance as a homeroom teacher, well, there would be times when I was a little bit strict, right? And then, they rebelled against me. What I still remember even now—I had given some guidance (***shidou shite***) during school and when I left (one of the students said), "I'm going to kill you." No matter how much you get one student to understand what you are saying there are times you can't communicate everything to the whole school, right? And when we were patrolling the school, you'd see students hiding and doing things and you knew if you said something to them there would be problems.

Most teachers agreed, however, that teaching was harder and more bureaucratic than they had expected.

> There is a lot of that kind of work, much more than what I had expected. I thought I would be with children every day and talking with them about things about humans, and also while teaching them math, discussing those things, and teaching classes, and thought that would be all. But of course that isn't all, of course I am teaching children about life through math classes, but other than

that, there are lots of other things to do. And that kind of thing takes quite a bit of time. (Midori teacher)

And teachers unanimously agreed that their work is difficult:

It's different, you know. It's harder than I expected. Yes, I had looked at it through rose-colored glasses (*amaku miteimashita*). (Shimogawa teacher)

It is rough (*kibishii*) you know. There are many kinds of students so you get many types of responses and that is difficult. It is much more difficult than I expected. If it were just teaching it would be OK, but there are many other things to do, too. I don't know if out in the world there are other jobs as rough, but I don't think so. (Midori teacher)

But, like many teachers in this sample, an elementary school teacher summed up the mixture of feelings she has about her work:

Before I just thought that I liked children. Well, of course, if I had hated children I wouldn't have become a teacher. At first there were lots of things I learned as I was working. It isn't just that children are cute, you know. There are times when I think that there can't be anything better than being a teacher. Of course there are things that I think, "well, this is my work so I have to do it," but of course it's work so that is natural.

Despite a willingness to complain about the difficulty of teaching, the long hours, and the bureaucratic tasks required on top of caring for students, these teachers expressed interest in their work and enjoyment in being with students. Most also compared their work to other jobs available and felt that their work as a teacher was a good choice. Even the one young female junior high teacher who said she may not continue as a teacher felt that the work was interesting, and challenging, and she felt privileged to interact with other teachers even while she felt she might not be up to the challenge.

A few high school teachers complained that there was no extra compensation for overtime work and work that was not explicitly required in their contracts. In particular, some math and science teachers reported that they felt underpaid and undervalued based on their sense that they could be making more money in private industry. One mentioned the lack of overtime pay but also described the flexibility of hours and the chance to do his own work at the school. Overall, he seemed to believe that the positive features outweighed the negative aspects of teaching.

Problem Teachers?

The principal at Meiji High School told me that there are also less dedicated and more problematic teachers in Japan.

> We call them baggage (*nimotsu*). "Window gazers" (*madogiwa*). And recently, also due to emotional issues, there are quite a few who have problems, but it is difficult to do anything about those things quickly. If there are one or two teachers like that around it is really a problem you know. I guess all you can do is carry them along (*kakaenagara ikazaru o enai*). Even if you get them transferred to another place, well, they will still be that kind of person. And if you just bounce them back and forth like a ping-pong ball, they won't be helped at all.

In general, teachers and administrators mentioned that although there were problematic teachers, there were at most one or two in a school. At Arata High I was told by three people that there had been two problematic teachers in the school until the previous year. However, these less effective teachers were clearly a minority and were usually dealt with, as the Meiji principal said, "by carrying them along." Teachers with skill and enthusiasm and a willingness to work harder than required seemed to shape the atmosphere at all the schools studied.

Becoming a Teacher

Competition

Becoming a teacher in Japan today is quite competitive, although there is variation in the degree of competition depending on the level of school and the subject. In Naka I was told that the ratio of applicants to those accepted for high school teachers is recently as high as 30 to 1, depending on the city, type of school, and special area of competence. A math teacher pointed out that it is not as difficult for a candidate in the field of mathematics. For example, the student-teacher training began on the third day of my visit at Meiji High School. Thirty-two student teachers, all graduates of this high school, arrived to do their 2-week training for certification. I was told by the vice principal and several teachers that it would not be unusual if none of these students actually were hired as teachers next year because of the stiff competition. However, of the 32 students, not one was aiming to be a math teacher.

Both the requirement of a college degree and the competition to enter the profession reinforce the high status of teaching. Competition is also rigorous at the elementary and junior high levels, although it is not quite as intense for high school teachers.

These levels have a combined application process, so even though teachers may expect to be assigned to elementary school and apply for that position, they may find themselves hired for a junior high school, or vice versa. According to a report published by the Naka City Public Schools, of qualified applicants who sat the examination to become an elementary school teacher for the school year beginning in April 1995, 61 of 455, or 13.4 percent, were hired. For those applicants wishing to teach kindergarten or children with physical or mental handicaps there were 12.3 and 8.5 applicants respectively for each of these positions. In 1992, there were 3.2 applicants per position for elementary schools nationally, 5.0 for junior high schools, and 6.4 for senior high schools (Ministry of Education, Science, and Culture, 1995, p. 122). With the economic downturn continuing through the 1990s, however, the rates have been increasing, probably because more college graduates who cannot find jobs in private industry aim for the security of a teaching position. Within Naka City junior high schools and high schools—separate from the prefectural schools examined in this study—the competitive rates ranged from 35 to 1 for social studies majors to approximately 10 to 1 and 9 to 1 for math and science majors, respectively. The least competitive positions appeared to be in technical and vocational skills, but those numbers are somewhat deceptive since decreasing student enrollments have been publicized and have led to fewer applicants overall for technical teaching positions. Administrators reported that the ratios of applicants to positions at the prefectural level were similar to those at the city levels for different school levels and fields.

The degree of competitiveness and the status of teachers vary with the overall economic situation: according to respondents who are administrators, teaching becomes a more desirable career when other jobs are less available or more unstable. A high school math teacher explained to me that when he became a teacher over 35 years ago most teachers were "rich, only people with a certain status. Now those kinds of people don't go that way at all (become teachers)." He explained that at the beginning his salary was very low and, since he had to live off his salary rather than being independently wealthy like most teachers, it was difficult. He first worked at a commercial high school and many of the students took jobs after graduation at textile mills. They often encouraged him to quit teaching and to come work with them because they made so much more money! He felt the situation was better for teachers now. Another teacher told me, "now the economy is bad so lots of people want to become teachers. But at that time—19 years ago when he took the examinations—there were only about 2 times as many (applicants as positions)." A math teacher at Meiji High School described the general hiring situation for teachers of mathematics:

> At my time it wasn't that difficult to become a teacher. Maybe it was quite different between math and other subjects. But for mathematics, there aren't very many at all who have the license [the license is obtained through credits at college]. Of those people, those who try to become teachers are again a small per-

centage. So I didn't really think it would be that much of a problem to become a teacher. Because it was within mathematics.

This teacher continued to say that it still isn't difficult to become a *mathematics* teacher because the course work is so demanding.

I haven't yet had a student teacher in mathematics, they are that few. Even if you want to become one, a regular person can't do it. Those who are just so-so at math won't make it.

Becoming a math or science teacher appears to be less competitive, but the college course work and the employment examinations are difficult. Math and science teachers constitute a select group. In addition, high-achieving math and science students have many opportunities in industry that are unavailable to humanities students. As noted above, the competitive rates are currently nearer 10 to 1 than the 30 or more applicants to each position seen in the humanities.

The Selection Process

The principal at Matsu Elementary School, who had spent several years at the Naka City Board of Education and had been involved in hiring and promotions, remembered the selection process as follows:

There are various credits you take to get a teachers' license. . . . Within universities they have thought a lot about the curriculum and even if it is well constructed, not all students will necessary develop along with it. The license isn't enough in order to become a teacher, they have to take an examination. Next year there will be 170 Naka City elementary school teachers hired. According to yesterday's newspaper, there are now about 16 times that many who have applied. How we choose them, I think that is the second most important thing. It is hard to know what type of test is best. It's not only a paper and pencil test. It is quite difficult to test how much teaching ability they have.

Academic ability alone does not allow an individual to enter teaching. The principal at Tancho Elementary School, who also had experience interviewing applicants, talked in detail about what he remembered about the procedures for selecting teachers. He described them as follows:

I guess it is about what kind of person they are. First there is a test of their abilities—in all of the subjects. For those who are above a certain basic level, we then have an interview. There we are looking at their personal character and their ideas toward education. Their way of thinking and ideas about children. Their kindness and thoughtfulness (*yasashisa* and *omoiyari*). That is the most impor-

tant for teachers. So we evaluate that at the interview. And then, only those who are employable are chosen. We present various problems. For example, "you are in the classroom, and now you are about to go on the school excursion. What cautions are you going to tell the children?" We have them think that the interview meeting is a classroom and to think of the interviewers as the children. There are about five of us there. For example, "next week is the school trip. Among the five of us, one is sick, how shall we treat that person?" And we also ask them various common sense questions about education. I said "common sense" right? Since they are trying to become teachers, we of course expect them to know all about the contents of the *Course of Study*. We ask them about the important points only. And through that sort of thing, we can tell if they are the sort of person who would be a good teacher of the students.

This description summarizes the contents of the screening process for new teachers. The process is lengthy and conducted by older teachers with years of experience, like the two principals quoted above.

Teacher Training

Training takes place formally as directed and is provided by the city or prefectural board of education and also within individual schools. All prospective teachers spend 2 to 4 weeks in a school as part of their college training. The school in which they do this student teaching is usually either affiliated with their college or university or is one from which they graduated.

Training for novice teachers. Beginning in 1989, education authorities agreed to institute more extensive training for novice teachers. By 1992, all new teachers at national and public elementary, junior high, and high schools and at special education schools were receiving the 1st-year training. During their 1st year, all high school and junior high school teachers work a reduced teaching load of about 10 hours of teaching a week and are expected to go to the Educational Center one day a week for training. Training involves visiting other schools and other education-related institutions and writing extensive lesson plans. Some of the trainees present lessons while others take the role of students and must write lengthy critiques. At the elementary school level there are 90 hours of training time, 60 of which are within their school. The principal at Tancho told me that the training within the school was the most important because it is the closest to the teachers. He described how administrators carefully balance the mix of teachers at each grade level, especially if one is a novice teacher:

> If there are three classes (at a particular grade), class one will be a veteran teacher, class two will be the new teacher, and class three will be a teacher in the middle (in terms of experience as a teacher).

This system ensures both an assigned mentor to each new teacher and a group of colleagues with varying levels of experience. The system attempts to reinforce sharing of information among teachers and the guidance of younger teachers by more experienced teachers.

On-going training. In Naka Prefecture, as in most prefectures in Japan, teachers spend extra time during their 6th and 10th and 20th year at training sessions outside of their school. These sessions again provide a chance to interact with teachers at other schools who are at the same career stage. The sessions also usually provide some time to meet with others who teach the same subjects. Teachers also are required to submit lengthy lesson plans and other reports during these years. When a teacher becomes a grade level head teacher or advances to other administrative positions, they also attend training sessions.

Teachers have chances during certain training experiences to visit major research centers and to see advanced laboratories and equipment that their schools might purchase. A few teachers complained that they have no chances to return to graduate school in order to update their science training; however, plans have been made since 1993 to allow up to 1,250 teachers to return to graduate school for 1 to 2 years (Ministry of Education, Science, and Culture, 1995, p. 128). All new teachers participate in a training session that involves overnight stays, sometimes in the form of a cruise to cities in Japan with colleagues from other prefectures. Teachers also periodically participate in overnight outings devoted to training sessions in their subject area or on specific tasks, such as career guidance, within a school.

Two teachers in this study were also planning overseas training trips—nationally, among teachers older than 35, 1,200 are sent overseas for 30 days and 3,800 are sent for 16 days. Among teachers under 35 years of age, 180 teachers are sent abroad for 60 days (Ministry of Education, Science, and Culture, 1995, p. 129). In addition, some cities, such as Naka, have additional programs for overseas and other types of training. The vice principal at Shimogawa Junior High School explained to me that in Naka City, 75 teachers are chosen each year among those with at least 17 years of experience to be "researchers" (*kenkyuuin*). Most people apply several times before being chosen, and an administrator's recommendation is required to be eligible to apply. This is called "in-country exchange study" and chosen teachers get time off from their own school to travel to a place of their choice within Japan for a few weeks of study during the year. One teacher is also chosen to go abroad from this group. There are also 25 younger teachers chosen for another program and they are called "research students" (*kenkyuuinsei*). He told me that it is hard to get chosen and then the research itself is difficult. Most of the meetings among those chosen for these special research positions do not start until 6:00 or 7:00 p.m. on school nights, so the positions are time-consuming.

Evaluation of training. The training system appears to be extensive, but the principal at Matsu echoed several other respondents when he mildly criticized the structure of this training system:

> That is a 'big systems' way that teachers are trained. It would be nice if that were all that was needed. What I think is that it depends on the teachers themselves. It depends on what they are willing to do (*yaruki*). On their way of thinking and their enthusiasm (*iyoku*). It is on those things that their futures are made. Whether they are men or women, that doesn't matter, but whether they love children and if they want to become better and better teachers. If they have that enthusiasm, they will become wonderful teachers. On the other hand, if they don't have that desire, no matter what happens, they won't advance and will become problem teachers (*zannen na sensei*).

Through various conversations, interviews, and observations I learned that the evaluation of teacher training is somewhat mixed. Older teachers and administrators waxed nostalgic for a time when teachers trained each other and themselves without the need of a formal system. For example, an official at the Education Center told me, even though he had been involved in developing the current training system, that he had also argued that the informal training of the past had advantages. His explanation of why informal peer training was less likely to happen now was rather general, "teachers could learn a lot from each other, between the elders (*senpai*) and beginners (*kohai*). There is a lot (to be learned) there." According to him, the diminished sense of a clear hierarchy is why a formal training system for teachers has become essential; in the past, according to him, teachers with more experience would naturally instruct and guide younger teachers and young teachers expected to be guided and taught.

The informal training I observed seemed to emphasize human relationships and to encourage the transmission of knowledge and experience from more experienced to less experienced teachers. Three fourth-grade teachers, including a 1st-year teacher, a 6th-year teacher, and a 20th-year teacher, reported that they discuss things among themselves continually and are eager to help each other. In a more formal setting, the vice principal at Meiji lectured a group of 33 student teachers during their 2nd day at the school. An excerpt of the talk is presented here:

> Students look at you with their individual values, so some will not like you. But you have to like all the students and like teaching your subject. There are students who don't fit into my values. Outside of school you can decide on people by your values, but toward students you can't do that. The strict thing is not to discriminate. Second, you must balance being kind and being strict. And third, you must be enthusiastic for research. Every year I teach 15-, 16-, and 17-year-old students. And every year the difference in age gets greater. I can't teach based on my youth and good looks anymore. But I have to compete with young teachers.

> So I have to study and improve my teaching. It is good to be a teacher, but it is really difficult.

This vice principal had been at Meiji for over 20 years and all the student teachers were graduates of this school. Although this is "big systems" training because of the formal group setting and large number of student teachers, he also revealed some of his personal struggles during his half-hour talk to the young potential teachers.

Training sessions during the 6th and 10th years of work got rather mixed reviews from the teachers in this study. For example, one high school science teacher gave a typical response, regarding his 10th-year training when I asked whether it was useful:

> Well, mm (he laughed). You hear about various other teachers' experiences and can compare them to your own. That has some meaning, I guess. So I wouldn't say it was zero in terms of usefulness. Well, when you have taught for nine years, mostly you just end up saying 'oh, right' when you hear people talk. There wasn't anything in particular that made me think 'wow, that is amazing.'

Many teachers and administrators told me that the content of the training was not always as important as the chance to mingle with peers and reflect upon one's job. There also seemed to be a consensus that the work required for inservice training, such as preparing extensive lesson plans or reports about the training, was useful because it required self-reflection rather than because it provided new information. But other teachers complained that while gathering together with other teachers was sometimes enjoyable, it took time away from their own teaching:

> When you are away from things (because of attending mandatory training sessions) you can't do the things at your school. If something happens on the day you have to be away—things are limited to happening on those days when you take those kind of business trips, you know. Someone gets hurt or one is kicked or something. So when I am away I worry quite a bit.

This teacher continued to complain that the speakers at training sessions are usually well-known (*erai*) and do not say things that will embarrass themselves. "They don't want to say things like, 'I tried this and it didn't go well.'" He described how the teachers at his 10th-year training session rebelled by not attending what they saw as useless sessions and instead divided themselves into subject groups and organized renegade training sessions.

> (These sessions) had some meaning. (For example) we learned how to use computers to do science. Of course, each individual's example was different, so even if we talked about doing similar things we would respond cooperatively to one person. We would each focus on the area which we could do well. And naturally

each person's ideas developed. It wasn't only studying but also how something should be used, each of the ideas was different and they would all come up.

The best training, according to this teacher and most others, was self-designed and cooperative, not led by elite teachers or administrators. The renegade sessions he described seemed to coincide with administrators' opinions that the best training is the informal sharing of information by experienced teachers with their less experienced colleagues.

When I asked a science teacher at Chuo Junior High School how the 10th-year training could be improved, he described how difficult it is for older teachers to ask informally to observe regular classes. He concluded that training could be improved by providing opportunities to observe classes, rather than sitting through lectures. Overall, his comments were quite critical of 10th-year training. He echoed what I heard from many teachers, i.e., that they learned the most from observing actual classroom situations and hearing from experienced teachers about their struggles as well as their successes. Despite complaints about training, most training sessions also include time for teachers to interact informally, and this can provide the chance for reflection and casual exchange, albeit in a required format, that teachers say they crave.

The principal at Matsu Elementary School told me that probably about 40 percent of teachers participate at some time in voluntary training sessions, organized by the school board or education center, for which they must use their evening or vacation time. However, one high school teacher told me that the best way to learn things is to ask someone, particularly more experienced teachers in the school, directly. He concluded that although you can choose voluntary training sessions based on your own interests, there are not usually sessions offered that address essential things needed for day-to-day teaching.

On the other hand, most teachers voluntarily participate in teacher-run subject study groups that meet in the evenings. Among the sample of teachers I interviewed, all had participated at some point in their teaching career, although several teachers were not participating currently because of other commitments. The evaluation of these study groups ranged from very positive to a feeling that the things discussed in the groups were too difficult to understand. The contents of study groups and research meetings generally include discussion of new textbooks or books on teaching methods, preparation and sharing of useful lesson plans, and development of new curricula or criteria for specific subjects and grade levels. One special Saturday session I attended for social studies teachers at night high schools included a student-produced video and panel discussion with the students involved. The hour long session with five students was followed by presentations by four teachers of their own research on night high schools and teaching. Meetings sometimes include a guest

lecturer or a participant presentation followed by formal questions and answers. Teachers often reconvene over drinks or coffee for further discussion in a more informal atmosphere. These groups offer time to learn, present ideas and research, network, and socialize.

Summary: To summarize, 1st-year teachers receive about 60 hours of in-school training and 30 hours of out-of-school training and 5 or more days of training involving overnight stays. The in-school training mainly involves guidance by experienced teachers who are assigned as mentors, formal observations of model classes, and informal discussions. The out-of-school training includes lectures, practice teaching, volunteer work in the community, study groups, and visits to schools, educational centers for children, welfare homes, and private businesses. The goal is to learn from teachers in other schools and to learn about other views of education and teaching. Monbusho also sponsors an 11-day training cruise each summer for a selected group of 2,400 new teachers. The cruises include lectures by specialists on teaching methods, presentations about the structure of schools and the role of teachers, and visits to vocational, academic, and cultural institutions in port cities. The goal is for participating teachers to develop relationships across regional and school boundaries. Teachers not selected for the national cruises generally participate in local overnight training programs for beginning teachers.

Three of my interviewees and several principals had either already traveled to or were about to travel to foreign countries through training programs designed for observations in foreign schools. One reason schools were so receptive to my presence was that I was seen as a source of information about foreign schools. More specifically, two teachers had upcoming foreign trips planned and used my visit to ask questions as part of their preparations. Also, the vice principal at Minami called me after my visit to ask for my help in finding good interpreters for an upcoming Monbusho-sponsored trip to visit U.S. schools in Ohio, Colorado, and California for which he was an organizer. This emphasis on visiting foreign schools as part of lifelong education for teachers would seem to reinforce strongly a sense of professionalism and the importance of continued learning.

Job Rotation

Elementary and junior high school teachers are hired by the city board of education and high school teachers are hired by the prefectural board of education. All teachers at both levels reported that they saw themselves as hired by their respective board of education, not by an individual school, so they expected to be transferred among various schools, usually without being consulted. They also knew they might be transferred out of classrooms into the education research center, the board of education offices, or other administrative or research positions. Teachers have almost no control over their assignments.

One female elementary school teacher with 6 years of teaching experience commented as we discussed how much she liked her current school and colleagues.

> Teacher: Let me stay here for another nine years! (She laughed.) I will leave this year! I say it in a loud voice. I will leave this school.
>
> CK: Is it already decided?
>
> Teacher: It's set. In your first school you can only take six years. I will move schools next April, then get married, and then, after about half a year, get pregnant. To that degree my circumstances will change, but they aren't likely to change that much.

I inquired as to whether her wedding plans were already made and she laughed and told me it was a joke, but she seemed quite serious about the time table that women often follow. Although she is not happy about leaving her current school, the knowledge that she will most likely be transferred allowed her to plan for and expect the change.

In general, all the teachers and administrators believed that rotations through various schools were important for both the development of individual teachers and the morale of the school. Almost everyone responded similarly to the experienced high school teacher quoted here:

> If you are at one school too long, there is a part of you that gets too comfortable with things. We are hired by the prefecture. We are teachers but we are also civil servants, right? We are transferred regularly, and that kind of system is probably good. I have been here 11 years and that is a bit too long. If you get too intimate with the flow of things at one school and are active within that, you get so you feel like you want to move on.

The belief is that although it might be more comfortable to get used to one school and remain there, it is also not very challenging and does not push teachers to see the need for change in various areas of a school. Teachers also regularly told me that although they would like to be able to choose the schools in which they work, they recognize that because the choices of all teachers could not be accommodated, they would not always get their preferences.

In addition, within a school, teachers expect to teach all grades. One sixth-grade teacher commented on his desire to teach many grade levels, a sentiment expressed by most interviewees:

> Teacher: I really had wanted to try first grade. From the start I had taught second grade, then third grade. Then fifth grade, sixth grade, fifth grade, and then I went and had sixth, then fifth, then sixth, then fifth, over nine years. So I definitely

> wanted to teach first grade and put in my request. So it happened that I got to teach first grade. And I didn't know anything. I had taught fifth and sixth. But there was a veteran female teacher at that time. And another teacher in her thirties, about in the middle. And the head teacher was over 50. I was taught a lot about first grade. And it was interesting for me too—I learned a lot.

Again, the most familiar work is not viewed as the best way to develop one's teaching skills. Several teachers told me that teaching a variety of ages was necessary to be able to understand children. One sixth-grade teacher quoted above even suggested that it was easier to respect childrens' developmental needs when moving between first and sixth grade. The knowledge gained through a variety of teaching experiences seems to be valued.

Similarly, reflecting the view that it is important to be knowledgeable about many aspects of a school, the principal at Meiji High School explained to me that even though his major was English, he did not want to see himself only as an English teacher. As he became an employee at each school to which he was assigned, he began to be able to

> grasp general school management—not just look at my own major subject but also to have a goal of learning school management. When you get to be a certain age, from your midforties to about fifty, you become the center of the school. Then it is helpful if you have broad knowledge of the school system.

This principal also emphasized that in order to gain this knowledge, experience at unfamiliar and less prestigious schools is also helpful:

> Before I came here, I had been a night high school principal for five years. I have come through them all: a commercial high school, an academic high school, and a night high school. . . . It is a bit inconvenient but necessary in order to have a broad view of education.

I asked every teacher about whether or not they felt the job rotation system was coercive, and although a few agreed that it could be seen that way, they argued that it was necessary and a way that all teachers got various experiences. Because rotation of teachers is widely used throughout most public school systems in Japan and has a history, being transferred regularly appears to be accepted as a part of the work of a teacher. Because all teachers are subject to transfers, being transferred is generally not viewed as either a reward or a punishment, but as a natural part of teachers' work careers.

A Typical Day

All teachers seemed to be busy during their required time at school (typically from 8:25 a.m. to 5:00 p.m.), but the degree to which school activities took up their time outside of those hours varied greatly, depending on the school, age, sex, and the individual motivation of the teacher. During their hours at school teachers do many things in addition to teaching. Elementary school teachers teach all periods on most days, except for a few periods when their homeroom has music class. Therefore, they are generally in class with students from 8:45 a.m. until 3:30 p.m. Junior high and high school teachers typically teach three or four classes a day of the six-period schedule. In addition, they generally have several periods when they teach the same lesson, which may reduce their preparation load. Most teachers reported that they arrived at school sometime between 8:00 and 8:30 a.m. and left between 5:00 and 6:30 p.m. A few teachers stay later or arrive earlier because they are involved in club activities or for other reasons, and many regularly attend research meetings in the late afternoons or early evenings. Although Japanese teachers are at the school for long hours, their time at school is not only for teaching. Teachers also plan classes while at school, either individually or with other teachers. In addition, teachers expect to use varying amounts of time each day talking individually with students—students at junior high and high school know they can speak with teachers between class periods and before and after school; elementary and junior high school teachers also eat lunch with their classrooms; and high school students know they can visit the teachers' room during lunch to seek out teachers. Finally, as discussed below, teachers spend much time in administrative, planning, and guidance meetings with other teachers and administrators.

The work of a teacher can seem never ending. One elementary school teacher described her work in a way that will probably sound familiar to teachers throughout the world:

> The really strange thing about a teacher is that if you want to make work you can make as much as you want; it is that kind of a job you know. To the degree you want to try something, you strangle yourself. For example, if the children in your class can't yet write their characters well, you decide you will have some character practice and so you try to make some character tests on your own and well, those have to be graded. And when you teach classes, if it is hard to understand, you will make some additional helpful materials. Then you have to make them and of course it is because you like it that you do the work. But it is work you know. So there are teachers who are making computer software because they want their students to learn to use the computers. The kind of teacher who goes without sleep–they exist and well, to be frank, if they didn't like it they couldn't do it! The only tasks that are set are the very basics, but even then, to go home at 4:00 p.m I think you can't go home at 4:00 and not take things home with you.

Work Hours

On average, teachers seemed to work from about 8:15 a.m. to 5:30 p.m., with an occasional later evening, plus every other Saturday. Most teachers take about 10 days of summer vacation and fewer days of vacation at the end of the school year in March, and at New Year. However, except for a few comments about the number and length of meetings, teachers did not seem to feel coerced into overly long hours. The exceptions were new teachers who needed to spend a lot of extra time on class preparations and student advising because of their own lack of experience. Teachers generally referred to their first 2 or 3 years of teaching as quite strenuous and spoke of having stayed at school until 10:00 p.m. or later almost every night during their first few years. But few teachers had family responsibilities during their first few years on the job, so the expectation was that full devotion to work during that time was not an unnatural burden.

Elementary school teachers. Two elementary school teachers described the following typical schedules. The first is typical of a teacher who is dedicated but not extreme:

> I come around 8:00 or 8:05 a.m.. Now I'm not doing club. But from September, I'll be supervising the basketball club, so then it will get a bit later. Now, even if I chat with people, and do some advising and things, 5:00, or sometimes 6:00 p.m. If I want to go home, I can go home by then. And when club starts up it will be about 7:00 p.m.

The second elementary school teacher described the other extreme, in response to my comment that he is probably very busy now because he is a research scholar (*kenshuuiinsei*) and has a newborn child:

> Teacher: There is a social studies festival planned for Naka and I am a staff member. Last night we were working on that until after 10:00 p.m. Also museum work—a history room at the Naka City museum. During summer vacation sixth-graders will get together and I work as a summer class instructor, and also a 10-year project to put Naka's history into a textbook, now we are doing the investigation for that.
>
> Interviewer: Are you also doing clubs?
>
> Teacher: Yes, I am. Right now it is girls' softball, and then also swimming. Then we have staff meetings, and editorial board meetings—something somewhere after school in the evening.
>
> Interviewer: Is that about two or three times a week?
>
> Teacher: Right, two or three times.

Because his wife is currently at home on maternity leave (she is also an elementary school teacher), he gets up at 5:00 in the morning and generally gets to school before 6:30 a.m. and works until 8:30 a.m. when classes start. Two or three nights a week he is at meetings until 10:00 p.m. or so in the evening, and the other nights he gets home after club is over, generally after 7:00 p.m. He said he generally only gets 5 hours of sleep. Next year, however, when his wife is back at work, he will have to take one of the children to day care in the mornings so will not get to school until closer to 8:30 a.m., losing his early morning work time.

Junior high school teachers. Two teachers at Midori Junior High described another set of schedules, equally varied for different reasons. One female math teacher who has two small children described her schedule as fairly regular:

> Teacher: I usually arrive at about 8:20 a.m. and at 5:00 p.m. I am supposed to pick up the children from the day care center. It's close to here, so I leave a bit before 5:00 p.m.
>
> Interviewer: Do you usually have work you take home with you, too?
>
> Teacher: Well, yes, but even if I take it home I can't do it at home, so, I really have no help at home and there is no time at all to do my own work there. I really try to get everything done while I am at school.
>
> Interviewer: Do other teachers ever complain about your leaving at that time?
>
> Teacher: No, they don't say anything at all.

The other teacher reported a schedule at the other extreme. He generally arrives at school between 8:00 and 8:15 a.m., although the day I followed him he arrived at 7:00 a.m. for a PTA newspaper collection drive. He discussed various specific meetings and then summarized, "well, really I have had a extreme (*hidoi*) life lately. About 3 days in a row last week I had meetings from around 6:00 p.m. and when it is bad they don't get over until around 12:00 midnight."

I asked him when he saw his family.

> Well, in the mornings, and at night, that sort of thing. I try not to destroy my family but the times when we can eat dinner together are really rare. Maybe once a week, or well, Sunday, right, on Sundays I am the reverse, at home almost all day.

I suggested he was more dedicated than some teachers and he responded:

> Not dedicated, but somehow various types of work just pile up. Well, the fact that for teachers no matter how many hours you work your salary is the same, well, for me—it may be the reverse for others—I take it as my own responsibility. It is my own work, so it isn't for money, whether I go home at four or stay and work

> and start doing club activities at six, it isn't for the money so somehow that makes me work more! So even if my research meetings go until 10 or so, they are not at all related to extra pay, so because it is like that, somehow conversely I do it. And of course there are some kinds of extra work that you clearly get paid for, and whether that is good or not, I don't know, but that is not the reason I became an educator (*kyoin*). It is for the children, you know, and if I do it I want to do it. My work is my hobby.

But even he looked forward to having all Saturdays off:

> Sometimes I also think would be good to have more free time. Now that two Saturdays a month are vacation days it makes a big difference. When it becomes every Saturday off, my life will really change, I think. Then I will have two days off in a row. Now, even in the summer, there aren't many times that I have several days in a row, what with all my school activities. That will be nice.

Both of these teachers are typical; I observed several of each type at all schools visited.

High school teachers. Although most high schools require teachers to be present from 8:30 a.m. to 5:00 p.m., most teachers stay at least that long and like the two junior high school teachers quoted above, there are teachers at both extremes. Teachers sometimes stay late at school because it is a pleasant place to work, especially if they live with small children in a tiny apartment. For example, one science teacher reported that he usually stayed at school until 7:00 p.m. because:

> Then things that I could do at home, well, there isn't anything I can do there so I do them while at school. This is where the machines are [referring to computers and copiers, etc. as well as laboratory equipment]. So, rather, I stay here and there are quite a few times when I am doing my own things [meaning work not related to his school duties].

I asked one math teacher, who reported that he generally was at school from about 8:05 in the morning until 6:30 or 7:00 p.m., why he stayed so late:

> Well, Meiji High School teachers tend to go home comparatively early. When I worked at a school for the handicapped I always had various things I hadn't yet done, so I had times when I was at the school until 9:00 or 10:00 p.m. Now it (7:00 p.m.) seems relatively early.

Teachers of vocational subjects at Naka Vocational High reported that they often stayed late because they were working on equipment, trying out new materials, or helping students prepare for special activities (for example, a robotics tournament or tests of special skills). Although some teachers groaned about long hours, it

seemed that the teachers who worked the most were choosing their long hours either because they were on an ambitious career track, hoping to get research appointments or administrative appointments, or because they were interested in their subject matter and gladly spent their extra time exploring materials and meeting with other teachers with similar interests.

Timing

Although schools keep strict schedules and teachers usually arrive promptly for meetings, there also is a recognition that flexibility is important and that schedules can be bent to accommodate particular circumstances. In particular, the morning teachers' meetings and teachers' meetings that involve the entire faculty are kept within tight schedules and carefully run formats. Informational meetings often began and ended within five minutes and conveyed a large amount of information. However, meetings of smaller groups and meetings after school tended to allow plenty of time for discussion and did not seem to have tight ending times. In addition, times for starting and ending classes tended to be flexible, especially in elementary schools. In elementary schools, individual teachers generally have the same group of students all day long, and teachers are free to ignore the chimes that signal the start of a new class period. In almost all classrooms, students do not jump up to leave when a chime is heard; rather they wait until the teacher announces the end of a class period and then stand and bow on the command of the student in charge that day. Teachers may cut a class short and move onto a different subject or extend a period to continue a lesson, depending both on the contents to be covered and the teachers' assessment of the needs and energy levels of their students.

One fifth-grade teacher told me, as we sprinted up the four flights of stairs to his class room before first period, that the day's schedule was more packed than usual and if the students were not up to it he would give them a break and do something not on the schedule. He mentioned the schedule because I had been given a copy of his plan for the day; his scheduling is up to him. He told me that there are days when very few classes actually get taught because of student concerns or needs that absorb class time. One fourth-grade teacher interrupted two classes, physical education and Japanese language, to have a class discussion about getting along with each other because relationships between students had become an issue. Teachers are encouraged to use problems for taking time and calling upon students to think about various ways to work together better.

High school morning meeting. Each day's meeting is unique but generally follows fairly standard procedures. The emphasis is on sharing information with the full teaching staff. My notes from Naka Vocational High School demonstrate how tightly schedules are followed and how much information can be shared within 5 minutes:

> At 8:25 a.m. no one was in the teachers' room except the teachers who have their desks here. At 8:29 a.m., almost all the other teachers were gathered and seated at the long tables in the back. The chimes ring at 8:30 a.m. and the vice principal stands as the chimes are still ringing. He begins to talk immediately as the chimes end. The first announcement is from the teacher who is the head of the student council. There is a second, quick announcement, and then the vice principal announces that they will discuss a student problem and the head of the student guidance department (*seito shidou bu*) discusses a 1st-year student who had a motorcycle accident on May 17. He describes that the boy has been coming to school to reflect on his actions (*hansei suru*) in a straightforward (*sekkyoku teki ni*) and energetic way so he wants to ask the permission of all the teachers for this boy to be allowed to come back to school. [He had been suspended because students are not allowed to ride motorbikes]. The teachers take a quick voice vote and there was no dissent, so he is allowed back.

The meeting ended just before 8:35 a.m., and the room emptied as quickly as it filled. The efficiency and respect for time seem to indicate rigidity and strict adherence to rules, but teachers did not report that they feel coerced into rigid schedules. Several teachers criticized some aspects of meetings within their school—mainly that there are too many meetings and the meetings last too long. But the efficiency of informational meetings seemed to be appreciated.

Elementary school morning meeting. My notes from Matsu Elementary School reflect a similar mix of efficient information sharing and more serious student issues:

> The morning informational meeting starts promptly at 8:30 a.m. with the chimes. The principal begins the meeting by introducing me. Then there are several announcements by various teachers. One announcement concerns the need to watch students so they would not run in the hallway. Another teacher announces something about using computers, and a third teacher announces that there was a safety inspection yesterday and asks the teachers to all get out the sheet he had passed out. The chimes ring to end the meeting and the principal takes the mike and thanks the teacher in charge of safety. He says that today he read in the paper that a fourth- or fifth-grade student in the prefecture was running in the hallway and caught his hand in the fire hose and his finger got cut off. He says they should check for those types of hazards too. At exactly 8:37 a.m. the meeting is over and teachers are talking and getting ready for the first class.

Although both of these meetings might seem to trivialize important issues by discussing them so briefly in a quick meeting, the information is conveyed efficiently to all teachers. I was told that committees had previously discussed every agenda item thoroughly, so that all details are familiar to a representative group of teachers before being voted upon or presented in a brief announcement at an informational meeting.

School Structure

In all the schools either a vice principal or the principal was present and usually started and ended the meetings, but the meetings were led by another teacher on a rotating schedule. At Tancho Elementary School an experienced teacher conveyed his worry to me about the 1st-year teacher leading the all-school morning meeting for the first time. He was more concerned about supporting and training this young teacher in her first chance to direct the entire school than he was about the behavior of the students. He told me that the rotation of leadership provides chances for all teachers to become familiar with some administrative duties and for teachers to perform in front of their peers regularly.

Formal Structures

There are complex organizational structures within all Japanese schools that have evolved over many years. Every school has a guide book that is developed each school year detailing these structures and the responsibilities of individuals within the schools. Many tasks that might be performed by administrative, clerical, or maintenance staff people in other countries are the responsibilities of teachers in Japan.

At the structural level, all the schools have a lengthy list of committees and responsibilities that are organized and published at the beginning of a school year. Every aspect of school administration is assigned to a specific group of teachers. The list of committees in the school guide book for Matsu Elementary School listed the current teachers' names and each category was further broken down into subcommittees with numerous responsibilities. A partial list follows:

Management committee. Fourteen members. Vice principal is the chairperson, and also includes the principal, office head, administrative head teacher, the curriculum head teacher, the health committee chair, the student guidance head teacher, the head teachers of each grade, and a student representative. Subcommittees include, for example, an activities committee and graduation and advancement committee.

Student guidance committee. Eleven members. Curriculum head teacher is chairperson. Includes the principal, the vice principal, the administrative head teacher, the student guidance head teacher, the school nurse teacher, the school doctor (usually a local doctor who visits the school periodically), a representative from the area government, the chairperson of the PTA, and a "folk representative" or "child member" (*minsei daihyou* or *yoji iin*). Subcommittees include one on "recommendation points for school educational cooperation" and one on training.

School health committee. Nineteen members. Chaired by the health committee chair. Includes the principal, vice principal, head administrative teacher, head curriculum teacher, the nurse teacher, the student guidance head teacher, the lunch room head teacher, the physical education head teacher, the nutritionist, three doctors, the school pharmacist, and five PTA members.

Other committees. In addition, there is a committee on bullying and other policy issues with 14 members, a Committee for Choosing Educational Materials, a Committee for Budget Formation, a Committee on the Management of School Safety and Hygiene, a Committee for Recommendations about the Five Day Week, committees for each subject group and for each grade level, the student guidance committee, the health guidance committee, the school library committee, the school budget committee, and a committee to supervise each aspect of student government including broadcasting, announcements, health, physical education, lunch, animal care, plant and grounds care, beautification, library, weekly group meetings, and class representatives. Each student government committee has at least two teachers in charge of meeting with two student representatives from each classroom. Finally, there is an emergency policies committee, including two administrative committees and all teachers as members. At a more philosophical level, each school's goals (*mokuhyou*) are rewritten, or reviewed and updated each year in committee.

Reports from each committee meeting are then presented at grade level and subject level meetings. Decisions and reports are again discussed and sometimes challenged. This extensive committee structure necessitates many interactions among members of the staff. Committees all meet regularly and all teachers are involved in some aspect of several committees. Thus, teachers are at least formally responsible for numerous aspects of school management beyond their own classroom responsibilities. Teachers also know exactly which afterschool voluntary club and inschool required club activities are their own responsibility, which tasks in the teachers' room such as scheduling coverage for absences, scheduling for extra activities, or planning for social events will be taken care of by which people, and what roles they are to assume within their subject, grade level, and committee assignments. In addition, most schools also describe in great detail who is responsible for which room in the building (for cleaning and any potential emergency problems) and who is responsible for supervision of the building on Saturday afternoons, days during breaks, and evenings when students may be participating in clubs. All teachers also attend various city, prefectural, or even national level meetings and committees as representatives of their schools, sometimes by choice and sometimes by virtue of being on a certain school committee or in a certain role.

This complex organizational structure forces participation of all teachers in school management that extends beyond any departmental or grade level allegiances and provides for the distribution of power and shared decision making. When interview-

ing teachers and learning about their typical schedules and responsibilities I always had to learn about their duties supervising clubs, their committee assignments, and particularly their role as homeroom teachers, grade level heads, or other responsibilities. Each teacher's workload varies, depending on their current committee assignments and other responsibilities. Numerous out-of-classroom tasks seemed to accentuate teachers' roles as responsible to and for their school, subject, and/or students. The meeting time required to make all these assignments in a cooperative way is not trivial. Teachers quickly become integrated into a school and get to know each other well. The time they spend face-to-face in meetings or working on tasks probably increases the chance that they will share useful information about teaching and about students' needs.

Meetings of the entire teaching staff are held weekly or less frequently at most schools and tend to be rather formal. They appear to be bureaucratic meetings in which the staff is expected to offer fast, rubber stamp approval. Information tends to be presented and voted upon quickly. At Meiji High School, it was briefly announced by the chair of the Student Guidance Committee that they were adopting a new policy for school discipline. Rather than carefully policing violations of the dress code such as wearing earrings or lipstick or exhibiting certain unacceptable behaviors such as hanging out at coffee shops, the new policy called upon students to remember their school and act as its representatives. After announcing this broad policy with many subtle nuances, the committee chairperson asked if there were any questions. No one asked a related question. Although I thought this was a top-down policy decided by one committee or a policy that would have no real impact, the principal later commented to me that he had been impressed by the idea and that it had been discussed in the school for several months. The vote was smooth because the staff understood the nuances and agreed with the policy, or at least had been convinced to try it.

Informal Structures

Apart from the formal structures that determine interactions, teachers may also gather socially and choose friends within the school. When I questioned teachers about their outside interests or hobbies, I was told, for example, about a friendship based on being fishing buddies or that a teacher did not yet feel he had close friends in a new school because all his friends who enjoyed watching horse racing were at his previous school. I was sometimes asked about my food and music preferences, which led to suggestions that I come to dinner with a certain friendship group who particularly enjoyed the same foods or that I ask one teacher for the copy of a new music tape. Teachers appeared to form friendships based on being a similar age, on having children of the same ages, on coming from similar backgrounds, or living near each other. The system of rotation meant that teachers knew some teachers at

other schools well, too, and could draw upon those contacts when special information or connections could be helpful.

Teachers and administrators. The type of personal interactions that occur between teachers and administrators depends on the setting, the history of a school, and the individuals involved. Although all administrators were once teachers, they generally saw their current work as being quite different from that of the teachers. Administrators reported that they must work to find ways for getting to know all teachers better. For example, the principal of Arata High School answered in the following way when I asked him if there are times outside of school when he has contact with teachers.

> Of course, we have social gatherings too. We can talk about various things and try to understand each other at those events. Since I've become a principal those are more frequent. Just having classes at school doesn't allow you to understand what each other is thinking, you know. If you change the location, teachers can talk about various things. We also have chances to go on trips somewhere-about every three months.

Like most respondents, he emphasized the need to see teachers outside of their usual roles. Japanese teachers generally contribute small amounts of money monthly to entertainment funds set up for the entire school, each grade level, and each subject group. These groups then schedule banquets or overnight trips to hotels in the mountains, on the coast, or at hot spring resorts. These activities provide long hours together when everyone can step out of their usual roles, often facilitated by plenty of good food and especially alcohol. Most teachers reported that they enjoy these events, although some reported that they find them a burden, especially teachers with young children or other family responsibilities.

But administrators also report antagonisms with teachers as a group. The principal at Meiji High School was in his early sixties and had experience at five high schools. In response to my asking what he most worries about regarding teachers, he told me:

> Principal: The problem is, after all, the union group and how to get along you know. That is the biggest problem. They just end up opposing everything.
>
> Interviewer: I suppose that trying to change things is hard. Was it the same when you yourself were a teacher? Did you oppose various things?
>
> Principal: Well, right. When I was at the bottom, that same way of looking at those above me. I felt the wall, or you could say I felt opposing feelings.

Even at this school known to be a peaceable and democratic place for teachers, the principal felt that union opposition was his biggest worry. But the sense on the part

of principals that they cannot exercise power over teachers easily seemed more widespread, even today when union membership is at a low in Japan. In 1960, over 90 percent of teachers belonged to teachers' associations, by 1992, 59 percent belonged (Ministry of Education, Science, and Culture, 1995, p. 121). Some areas of Japan have higher union involvement than is found in Naka prefecture.

The music teacher at Meiji told me that some principals try to assert their power because it is their last chance to change the school before they retire. Others, he said, just sit back and relax during their last few years at the school. He agreed that vice principals usually have the most power in the school. I asked if they are usually closer to teachers than the principal and he responded that a vice principal's rapport with teachers depends on whether they are from the school or not. If they have taught there and then move up, they are more likely to understand and listen to teachers. But if they are brought in new they may be prone to give orders and be difficult.

Although interaction is facilitated because all teachers usually have a desk in one main teachers' room, the negative side of this arrangement is that teachers are also closely monitored. Particularly in elementary and junior high schools, but even in high schools, the vice principal and sometimes the principal and the head administrative teacher often sit at the front of the room at their desks. They can easily observe the entire room. Even the use of the phone is only from the desk of the vice principal in this main room, and all conversations can easily be overheard. At Midori Junior High School I observed this when a senior teacher, who had been rushing around all day getting memos and posters together announcing the postponement of the PTA newspaper recycling project due to rain, had to take a phone call from an evidently irate PTA member. As he gave a long and carefully worded apology and explanation while masterfully encouraging the mother always to let him know when she had questions or complaints, I knew I was not the only eavesdropper. At least five other teachers and the vice principal listened and then applauded him and one, the director of the administrative office, suggested he would be good in a business office. This case turned out successfully, but one can imagine pressure to say the right things on the phone under different circumstances or with less experience and confidence. There is a tension between the benefits reaped from always having colleagues nearby with whom to consult and chat while at the same time always being observed.

Interactions among teachers. There are ways that teachers can escape to more solitude than is possible in the teachers' room. The only science teacher at Naka Vocational High School was a rather extreme example of a teacher who chose to be alone. He spent most of the time he was not in class or at meetings in the science preparation room, which had effectively become his own office. I saw him only during the teachers' meeting, our scheduled interview, and during the time I observed him teaching. Other teachers knew he was likely to be in the science room, so he could usually be located.

Even for involved and sociable teachers, there are times of withdrawal from the group for various reasons. At Matsu Elementary School, one teacher and I almost missed the 10 minute closing teachers' meeting on Friday afternoon because we were in the classroom talking with a few remaining students. She forgot the meeting and it seemed that this was a not infrequent event for her or for other teachers. Elementary school teachers can spend time in their own classrooms and thus be somewhat isolated from the other teachers and administrators. Certain areas of most schools become inviting places for relaxation. For example, when I asked a teacher at Meiji High School what he does when he is worn out emotionally he responded,

> I go to the fourth floor preparation room—the chemistry room—and I smoke a cigarette there or drink some coffee and say things like, "Oh, it's no good anymore!" (he laughed). You can smoke, so (he laughed). There are teachers from another room who gather to smoke and well, there are about seven or eight given those who are entering and leaving or just standing around. So it is relatively easy to talk there. Because there aren't as many people as in the teachers' room. There is an atmosphere where you can talk easily.

Most teachers have their own favorite place to congregate with colleagues and/or to be alone. Teachers can choose whether to work in the general teachers' room where there is always some activity, with students in club activities that may be in a classroom or on a playing field, in subject related preparation rooms, in their classrooms, or in various other places such as the designated smoking area. Depending on their own personalities and preferences, teachers can choose to be more or less alone during unscheduled times.

Learning From Each Other

Although teachers can find privacy, a common aspect of Japanese schools is the opportunity for teachers to observe each other. The architecture of most schools allows teachers to hear each others' classes throughout the day. Teachers must interact regularly in the teachers' room and on their way to classes. More informally, individuals seek each other out to talk about how best to solve problems and to get ideas for teaching and advising. Many teachers socialize during free time at the school and casually discuss more personal issues. Watching demonstration classes together is valued by teachers and administrators and schools schedule these special classes as much as possible. Teachers also look for lessons left on chalkboards and other displays to better understand how their peers' teach.

Architectural Openness

During all seasons except for the coldest days of winter, windows, both to the outside and into the hallways, are left wide open and anyone in the hallway can easily see as well as hear all the activities in the classroom. In addition, most of the classrooms and all the teachers' rooms have windows that look out on the playgrounds. It was always obvious when any class was outdoors for physical education or other outdoor activities. In the mornings, classes often began noisily, but teachers commented on this approvingly rather than criticizing any disruptions to their own teaching. Energy and liveliness are encouraged among the children except during specifically quiet learning times. Teachers are aware of the activities in other classrooms and notice the noise level, but seem to accept differences in each others' teaching and disciplinary styles. Teachers emphasize the importance of teaching children to distinguish between times to be quiet and times to be active as well as to distinguish between the noise next door and the quiet activity in their own classroom. Learning this distinction was referred to by teachers as ***kejime***, (to distinguish between) and was seen as an essential socialization process for all Japanese students. One vocational high school teacher told me repeatedly that his goal for his less diligent students was to get them to have ***kejime*** so that they could go out into the world of work and behave appropriately in various situations. The architectural openness encourages teachers to teach students to learn to distinguish between appropriate behavior for different times and places.

At both Tancho and Matsu elementary schools, one of the first things I noted as I watched the first period class was what was going on in the classroom next door. At Tancho I described a riddle game students were playing in their morning meeting and wrote, "it is hard to hear their soft voices because the class next door is very noisy. The boy near me closes the door and then we can hear a bit better." Several times I struggled to hear a lesson because of the noise from a nearby classroom or the playground, but this did not seem to be perceived as a problem by the students or teachers I was observing. Teachers and students sometimes laughed about or commented on interesting sounds from nearby classrooms, but they never seemed to become upset about noise. The exception to this proved the rule. I observed two teachers leave their own rooms to go next door and scold students who were not studying during an unsupervised study period. Again, this was because students were not properly making the distinction between when they were to be quietly working and when they were allowed to be energetic.

Discussions in the Teachers' Room and Between Classes

Teachers learn directly about each others' plans and styles when they talk with each other in the teacher's room and between class periods. For example, an elementary school teacher spent the climb to his fourth-floor classroom discussing a science lesson with another teacher and two junior high school teachers spent the walk to their third-floor classrooms discussing student safety and how to prevent falls in the stairways and hallways. Teachers seemed adept at using their time together to learn and plan. Three sixth-grade teachers began their day by discussing details of the day's biology experiment before the morning informational meeting. Then, during the 10-minute break, after they had all finished teaching the biology experiment, one teacher described how she used the TV monitor to show the microscope slides of good examples to the entire class. Another teacher said he wished he had done that, too, but he had forgotten how to use the monitor. This brief interlude between classes turned into questioning about how best to reach all students, because one teacher reflected that he did not teach his class well enough and that many students did not get to see the results under the microscopes. This type of interaction seemed common among teachers. There seemed to be a general willingness to reflect on one's own weaknesses, to seek advice, and to share good ideas.

Casual Peer Interactions as Learning

Two teachers, one at Naka Vocational High School and one at Matsu Elementary School, described in detail how they learned from their peers during more casual interactions. When I asked in a joint interview at Naka Vocational High School about what type of training is most useful, they responded as follows:

> Younger teacher: I say that I'm troubled about this kind of thing, can I go see your class? We do that a lot.
>
> Interviewer: Really? And you don't feel nervous about it? What if an older teacher comes to watch your class?
>
> Younger teacher: If it is him, I don't worry. If it were a different person I might be uptight.
>
> Older teacher: This year there are three new teachers at our school. And they aren't used to vocational school students, right? And then I say, "come see my class." And we talk about various kinds of things and that becomes training.

Although many teachers agreed that the best training was watching other teachers teach, they also reported that it was unusual to be allowed to observe casually. But at Naka this seemed to be the atmosphere that prevailed. For one class period the

above 2 teachers had me watch each of their 1st-year math classes for 25 minutes of the 50 minutes total and then wanted to hear all my opinions about differences in how the students behaved and the teachers taught. There was no animosity, only a mutual expectation of learning from each other.

Socializing as Learning

One elementary school teacher commented, "we talk a lot. In the fourth grade, we are all great talkers (all three fourth-grade teachers laugh). Real talkers. It is really true that we just say what we want to say." Later, after discussing how much of this was her own personality versus a common experience of teachers, she continued:

> Teacher: We have opinions. But we each add those in a gentle way (*sunao ni*) and we don't hesitate about those things. So, things like age or experience or our qualifications, those don't really come into play. When we have a grade meeting, or more than a grade meeting, a meeting at school, she too can put forth her opinion (referring to the 1st-year teacher). But I have never had an experience when I couldn't do that, really.
>
> Interviewer: That's good isn't it? That atmosphere?
>
> Teacher: Right, and that atmosphere depends on human relations. Other than that you can't do it. It is even good if we just go eat lunch together or something. To have time together and share the things we are thinking about. And when we do that, we can decide on things, since we aren't with the children. So then we can talk about things together, anything. . . . We are always telling jokes and laughing together. But I think that kind of thing is really important. And because we have that, when there is something I need advice on, I can think that there are really people I can talk to. I am really grateful for that. So it is a good grade. But really, I have had that all along. That's why this school is a school like this.

The older teacher who had taught at several schools disagreed slightly and pointed out that not all schools have such good relationships, saying, "there are some people who really are problematic. And when those people are in your grade, it is a problem." The novice teacher continued to comment on how important the casual socializing is to her learning as a teacher:

> At first I came to school feeling really nervous. And when I heard that I would be in fourth grade, I wondered what it would mean. But from the start, we went to eat lunch together (these were the days before classes began), and everyday, everyday, they talked together with me. So very quickly I felt comfortable.

Formal Demonstration Classes

At Chuo Junior High School there were chances to observe other teachers in a formal setting. The vice principal told me:

> Twice a year within the entire school we have someone give a class and everyone observes and reflects on it. For a junior high school that is rather rare. We are the kind of school that can do that. And here we also have a teachers' meeting in the morning, and also in the afternoon; it is that sort of place.

He was proud that their school can take the time to observe classes together twice a year and have an extra afternoon meeting everyday. All the schools strive to have some demonstration classes each year and, as mentioned above, teachers regularly have chances to observe demonstration classes during periodic inservice training.

Looking for Evidence

Teachers also observe other teachers' classrooms and attempt to get ideas from chalkboards and other displays. For example, one teacher at Hasu Elementary School who was known for his ability to produce quick, entertaining sketches, periodically sneaked into various classrooms and drew a picture on their chalkboard. When I asked him about this, he pointed out that it was also a good opportunity for him to observe how other teachers were using their classrooms and what lessons were on their chalkboards.

Responsibility and Freedom

Most teachers and administrators stated that teachers have responsibility for their school and also freedom within the school. The big exception in regard to freedom is the way teachers are assigned to schools, but most teachers argued that a lack of choice in school assignments and regular rotations are probably best in the end. How assignments within schools are made varies from school to school. For example, the music teacher at Meiji High School said that, when assigning school responsibilities, the committee in charge, including the principal and vice principal, ask all teachers to submit requests either to be a homeroom teacher or to take on some other role. They also were invited to say what grade level they hoped to teach. Then the committee tries to make assignments that respect those requests. The music teacher theorized that the more traditions (*dentou*) a school has, the more it respects the teachers' and students' opinions. This situation did seem to be borne out among the three high schools we studied. At Arata High School, the newest high school, teachers' preferences were seldom requested when assignments to commit-

tees and homerooms were decided. Although the individual personality of the principal is also important, the teachers at schools with long traditions have the potential to form effective opposition against any rules perceived to be "top-down."

One Arata High School teacher, who had taught at Meiji High School for 6 years, commented that the greater power and autonomy evidenced by teachers at Meiji could be attributed to Meiji's long history and a group of teachers who pushed for the institution of a democratic process in all realms of school administration. For example, teachers at Arata as a rule informally let the administration know about their preferences for teaching roles, but the administration made all assignments at the beginning of each year. At Meiji, preferences were actively solicited and a committee including teachers made the final decisions, which were then discussed in an all-teachers meeting. This teacher told me that in his previous prefecture, where unions were stronger, all decisions on all positions except principal and vice principal were done through an all-teacher vote. In his late twenties he was elected to the position of head administrative teacher, a position usually reserved for teachers in their forties or older. While he had enjoyed that democratic process and the responsibility and challenge, he also noted that the process did not result in the best teacher being chosen for each position. Popularity and the operation of various factions lay behind many of the assignments.

The principal at Matsu Elementary School had an interesting view of the comparative power of principals, mainly based on his experience traveling on a research program to visit schools in the United States and Germany. He was told that if a school in the United States is a success, the principal gets all the credit and if it is a failure, the principal gets all the blame. The principals he met in the United States seemed to be involved in giving instructions to all teachers about how and what to teach. He thought that German principals were in-between, or, in his words, "in Germany, to teach each class, the principal and the teacher had a lot of discussion." He concluded that both situations are different from what happens in Japan, where teachers are responsible for both their own teaching and the operation of the school as a whole. He said he could not imagine trying to dictate to teachers about how to teach. When I questioned him about whether he tries to direct or motivate the teachers, he described how he sometimes gives pep talks to keep them going and to attempt to shape their teaching styles. This was very different, he said, from directing others' teaching.

Almost all junior high and high school teachers have a bachelor degree in the subject they teach. According to the vice principal at Chuo Junior High School, "as far as us (administrators) asking teachers how they do things or giving ideas about how to teach, that is rarely, almost never, something that we do." But the administration can exert an important influence on a school's reputation and atmosphere, and teachers are generally quick to point out good and bad aspects of the administrators in their school.

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Before I visited Shimogawa Junior High School I was told by various teachers that it used to be a school with major discipline problems. However, a new principal had come and he had worked to improve things. According to the head teacher, the new principal's main strategy had been to take responsibility for the school. He did that by meeting regularly with the teachers, always being available, spending long hours at the school, and making sure he got involved in all the issues concerning student discipline and school activities. The principal had been well liked and they were having a farewell party for him after school on the next day, because he had just been transferred to another school.

Another teacher joined our conversation by commenting that, "the students listen very well here." She continued to state, however, that she was concerned that they were too quiet; she preferred to see more liveliness among junior high students. The head teacher agreed, but added that he preferred this to the previous disciplinary problems. While observing teachers in this school, I noticed that they stood in the hallways during the 10-minute breaks between classes instead of returning to the teachers' room. All the teachers seemed to do this, and no one commented upon it as unusual, but at the other schools students were left mainly unsupervised during break times. At Shimogawa, students rushed around mainly within their classrooms talking to friends and playing, and several also approached the teachers to ask advice or report missing homework assignments, seemingly accustomed to the teachers' continual presence. The atmosphere was more controlled than in other schools in the sense that there was more surveillance of students. Teachers took responsibility jointly for monitoring hallways and other areas of the school during free time.

The head administrative teacher at Chuo High School also discussed the problems of changing the atmosphere in a difficult junior high school. After spending 5 years at a national junior high school affiliated with a university, he was sent to be the head grade teacher for 3 years at a school that he described as

> rather devastated (*koubai siteorimashite*). When I say devastated I mean that the students were not so good in various ways. Not just that they weren't well off (economically), the school was a good school but the discipline and things like that weren't so good. That sort of thing. The students wouldn't listen to lessons. They'd try to skip classes. The school was more than wild. You couldn't even teach classes.

Three years after he arrived, the school had improved. He described the process as follows:

> The most important thing, I think, was the teamwork among the teachers. They all worked together to raise the children. If you just try to get your own class to improve, it won't happen, but if you do it as your whole grade year, or even the whole school—I guess if you do it all together. If there was a problem, we all in-

vestigated in various ways and provided guidance. And in the end, the important thing was that that child was in one teacher's homeroom, so we talked about how to give responsibility for that child back to that teacher. In that way the connections between the teachers and children were built and strengthened. Those were the ideas we gradually spread throughout the school. If you ask what was at the base, well, the teachers had a sense of emergency (*kikikan*). Somehow we had to support these children and their learning and we had to do something.

I asked him if they also replaced the teachers at the school. He said that there were many changes of teachers, particularly teachers who seemed to feel that the situation was hopeless. Those teachers were transferred away to other schools. Clearly, the rotation system could also be used to help create new environments in some schools.

This example makes it clear that administrative teachers who were thought to be able to effect change were brought in to provide some leadership. However, this teacher emphasized that change came through team work and cooperation—all teachers had to help a homeroom teacher deal with individual students.

More Than Academics

Becoming Good Teachers

What is a good teacher in Japan? I received a variety of answers to this question. Often I was asked in return, "what do you mean by good? Good for the other teachers, good for the students, or good for the school?" The answers pointed to well-rounded teachers who cared about students. Although many teachers also told me, "of course, they also have to know the subject matter well," the bulk of responses focused on kindness and liking children. How being a good teacher translates into higher test scores for Japanese students thus becomes a less direct question. Few teachers told me that ability to teach content well was the major goal, although most seemed to assume that this was an important skill for teachers to have. Seemingly assuming that all teachers begin with a solid grounding in academic skills, teachers focused on the personal qualities required to be an exceptional teacher.

Motivation. One phrase that came up in some form in every interview when I asked what made a good teacher was "motivation for teaching (*yaru ki ga aru ka dou ka*)." I heard from teachers that the basis of a good teacher was *yaru ki ga aru* (motivation). One Midori Junior High School teacher, for example, described what makes a good teacher:

> If teachers don't give their all right from the start and instead say, 'the students don't listen anyway so why should I try?' Well, if you behave that way, then students definitely won't open up their hearts to you. So I would tell teachers that if from the start you give it your all, then even if you have failures, at some point you will see it was worth it.

Working hard and putting oneself fully into one's work were major themes in the answer to this question, but this was not described as effort focused only on work. Motivation was not defined narrowly but was rather an enthusiasm that could incorporate many types of personalities. The above quoted teacher later told me that many types of people can become good teachers:

> Of course there are also individual differences (*kosei*)—there are some who can talk naturally with children and others who can't. But children are flexible (*junan*) so they will be tough toward tough teachers (*katai sensei ni kataku*) and soft with soft teachers (*yawarakai sensei ni wa yawarakaku*); they will adjust their responses to the teacher. So it isn't as if you need to change those individual qualities—quiet people can't force themselves to become talkative and talkative people can't force themselves to become reserved. But children can understand that each teacher has an individual personality.

Teachers also emphasized that motivation could spring from outside interests. I was often introduced to teachers by first being told about their out-of-school activities. For example, at Midori Junior High School, a Japanese language teacher who was an expert at making and arranging dried flowers was encouraged to show me her bouquets. The art teacher was urged by the other teachers to share his photographs and stories from years of using his vacation time for travel around the world. Even among the busy teachers who seemed to spend all their time on school-related activities, the interests underlying their motivation were emphasized. For example, a Midori social studies teacher who spends, almost every evening on school related work and described his hobby as collecting copies of television documentaries told me that he brought his enthusiasm into his career and how much fun he has:

> I like it. (My work) is very fitted to me. My wife often says to me that it seems inexcusable (*moshiwakenai*) that I get a salary for something I enjoy so much. I do what I want. For example, today I showed the video about the self-defense forces, right? And the other day, I showed one about street children in Brazil from the summit there. And when I show that to students and they watch it and feel something, I think that is important social studies learning. If a teacher doesn't like things, students know that, don't you think?

He repeatedly emphasized that the teachers have like that activities or else students will be affected negatively. Motivation was characterized as developing through enjoying work and other parts of one's life.

Being well-rounded. In addition to motivation and incorporating fun and enjoyable school activities into the school day, many of my respondents emphasized the necessity of being well-rounded and having interests outside of school. Outside interests sometimes included educational or cultural benefits, and sometimes were described as strictly play. In order to give a sense of how important outside activities were to these teachers, I will quote at length from several interviews. For example, one elementary school teacher commented that "play" is important, not only for her own development but also for her relationship with students:

> This doesn't directly relate to skills, but for me, I don't like the days to go by with me just being a teacher. Although it is, of course, important to teach math, Japanese, history, and things, I sometimes try to play, do things that I like to do. Like hobbies and things I like to do, not just to be a teacher.... then I can talk about various things with the children and it isn't like I only know about school. I think that a teacher who knows lots of things about various subjects is quite wonderful, you know. As for myself, although I don't have confidence that for any particular field I know it to the tiniest detail, I do have knowledge about various things that I am always learning from teachers who know the details. And I think that may be important, too, especially for elementary school.

This excerpt also emphasizes the interaction between teachers and suggests that sometimes conversations not focused strictly on school life are beneficial to her development and to her students. The administrators, too, expressed hope that teachers would be involved in activities outside of the school. The vice principal at Chuo Junior High School told me that it isn't good for people to work from 8:00 in the morning until late at night, particularly in a world of rapid change:

> More than being difficult, it isn't connected to the individual's development. It's good if life and work were intertwined, but conversely, it is also important that when work is over and they have free time, when they are with their friends, that they live their life, don't you think? That kind of awareness is also important. Rather than staying at school until 10:00 p.m. and going home just to sleep. That really is a life of only school. In addition, a life of only school isn't enough for the children. (Teachers) also have to convey different points of view. Long ago, there weren't as many changes in society, but now the changes are really extreme. If teachers themselves don't absorb those extreme changes, they can't keep up with the children. So, they must have the strength to respond to changes...

The principal at Meiji High School supported this position and described well-roundedness as necessary for the mental health of teachers:

> Teachers who have had broad experiences have become necessary. A "multifaceted person" (*maruchi ningen*) style is also necessary, I think. And if you do that you won't end up being neurotic, you know? In particular the elementary and junior high school teachers (need to be multifaceted).

In addition to the hope that individual teachers be well-rounded, I was also told that a variety of teachers were necessary for a school. For example, the principal at Tancho Elementary School responded that it is good to have many kinds of teachers available as models for the children, including teachers who may have to limit their working hours due to commitments at home:

> For example, if a teacher is good at cooking, or very good with the family, and if another is very good at sports, like swimming, those individual qualities are important. And for example, if now the (teacher's) mother is ill, and they have to go home early for a while, maybe they really want to do club activities or things, but right now they can't. And there are teachers like that. But that is OK, and when the situation gets better, they can work more again. If you don't look at teachers with a long term view (*nagai me de*) and raise them that way (*sodatteiteikanai to*), I guess I think you can't get good teachers.

I was somewhat surprised at his point of view because it seemed to go against what businesses might be looking for in an employee. When I questioned him further, he clarified that the struggles teachers face outside of school may make them more capable as teachers:

> If you only seek efficiency that you can see at the momen—instead, we think of raising children, and also raising teachers, all as a part of education. There are teachers who can understand how mothers struggle (because they are themselves mothers).

An extremely busy junior high school teacher believed that even the time spent working late at night on bureaucratic type tasks contributed to becoming a well-rounded teacher. He commented about his many late night meetings:

> It really isn't at all a waste of time. It is learning about many things. We have lots of kinds of office type work, too. And office work has a big influence on other kinds of work. Human relations and things. We may be doing office work, but during that time we also can develop human relations and it becomes easier to talk with people.

Developing human relationships, outside of the classroom and outside of the school was a major reason why teachers are encouraged to be well-rounded. Being able to relate well to a variety of people was sometimes described as making people more "human." One junior high school teacher commented that a good teacher is:

> Teacher: A teacher who is like by students. Those who are like are the ones who have a certain humanness, I think.

Interviewer: And that kind of teacher, are they just like that, do they just have that personality from the start? Or as they get experiences, as they study some things, do they become that way?

Teacher: It's not just books, but it is as they interact as much as possible with other people, they begin to understand others' feelings, and understand children's feelings, and will be liked. It isn't that they are liked because their way of teaching is good. After all, teachers are people, and as people, those who are generous (*yutaka ga aru*) are the ones with some appeal (*miryoku*), those who appeal somehow to the children.

This teacher continued, as many others had, to describe how generosity develops not only from study and hard work, but also from enjoyable experiences:

There are people who have lots of knowledge, but don't appeal to students. The teachers themselves must study on their own, not just knowledge, but in order to have a generous heart (*yutaka na kokoro*) they must see beautiful things, museums and things, enlarge their knowledge, go to various countries, and have experiences like that. After all, it doesn't matter what the subject is. They aren't just teaching their subject. They are also homeroom teachers and fill other roles.

Even at the junior and senior high school levels where the preparation for entrance examinations is emphasized, teachers told me that just being able to teach the subject matter is not what makes a good teacher. Teachers emphasized being "human" around students.

The Value of Fun and Interaction

As have most observers of Japanese elementary schools, I saw many enjoyable activities and noted a willingness on the part of the teachers to include nonacademic segments in their schedules. At junior high and high schools there was an emphasis on examinations, but also an emphasis on allowing time for socialization and scheduling extracurricular activities. Schools were structured to incorporate and value nonacademic activities. In the morning teachers meeting at Chuo Junior High School, the 2nd year teachers discussed the second year 3-day camping trip that had finished 2 days earlier. They reported that they had enjoyed themselves, despite the work involved, and thought the children had enjoyed themselves, too. At Shimogawa Junior High School, the group of 2nd year teachers met to discuss how to combine their individual skills in areas outside of subject matter as they planned a similar camping excursion. One teacher was in charge of indoor recreation, one in charge of outdoor recreation and fire-dancing (a dance done with torches by a group of students one night at the campfire), and one in charge of meals—each teacher had responsibility for one or more of the numerous activities involved in camping. In addition, all

needed to know or learn various aspects of outdoor life and group organization. Since part of their stated goal was to "create memories" for the junior high school students, an important aspect of the trip was to orchestrate exciting experiences and the teachers needed to draw on their own sense of fun to help that happen. One teacher instructed students that they should not choose their committee assignment by rock, paper, scissors (*janken*) but rather because they are interested in a particular task. The teachers gave somewhat personal presentations about committees and revealed some of their own interests, seemingly hoping that students would also develop curiosities related to long-term interests.

Learning Specific Skills

Throughout my interviews, when asked about what makes a good teacher, I heard that people can become good teachers through learning from others and having many types of experiences. Specific skills such as ways to use materials are taught to teachers either informally by experienced teachers, or formally through inservice training. One elementary teacher carefully described the typical way to learn necessary classroom skills:

> One of the teachers who is good at art demonstrated various ways to use the art supplies—how to use this and how to hold that. That teacher taught us about that. And last year another teacher taught us about calligraphy materials, how to use them. That part of teaching, like writing on the board, for example is difficult. Especially when they are things that require you to use your body. For example, we teach physical education and things here, too. Even if you are taught about it, it doesn't mean you can do it well, but in elementary school there are a lot of teachers who are good at these various things and there are lots of chances to learn those sorts of things.

Her description of learning various teaching skills emphasized the importance of having a variety of teachers in the school and the seemingly easy way teachers learn from each other. After observing one fourth-grade physical education class where the teacher in her midthirties skillfully demonstrated somersaults of various kinds, I remarked to her that she was quite a good gymnast. She replied that she really wasn't, but had been practicing basic gymnastics with a teacher who had some training, and over the past few years had developed enough skill to teach the class well. She went on to complain about how much her body ached during this part of the year when she was teaching gymnastics!

Even writing on the chalkboard was described as a skill to be mastered from peers. Learning how to write on the chalkboard in a way that conveys the main ideas of the lesson was described as an important skill for all teachers. One elementary

school teacher explained how she mastered this skill and why it is so necessary. To her, a clear chalkboard presentation is useful to both students and to other teachers:

> During my first year, I was always told by various older teachers about the correct way to write on the chalkboard. For example, first always write the purpose (*midashi*)—what we will be studying. The children may not be looking at it, but by looking at the chalkboard, they can tell what we did during this 1 hour. The main point is on the board and is useful for note taking. Various teachers also come to my room and see what I have written. We will look in and see. It doesn't have to be something great, but is a reference, and for others looking at it as a reference, it is really useful.

Professor Hiroshi Usui, a teacher educator at Hokkaido University, wrote after observing classrooms in the United States as part of this Case Studies project:

> It was striking to me that teachers here did not seem to consciously organize their writing on the chalkboard in a way that would help promote communication with students. As well, they seemed to use the chalkboard less frequently than Japanese teachers. In Japan, the chalkboard is used as a primary medium of communication so that teachers are always aware of clarity, size, shape, as well as saliency of the items placed on the chalkboard.

He also commented on the lack of space on chalkboards and wondered who was responsible for cleaning the boards. In all Japanese classrooms at all levels of schooling, students take turns being responsible for cleaning the chalkboard between classes. If an assignment is written during one lesson that should not be erased, it will generally be copied over to the chalkboard chart showing the day's assignments. If a teacher enters a room to find a chalkboard that is not clean, he or she will usually either erase it thoroughly or wait until it is erased by a student to begin the class.

Teachers took for granted that a good teacher in Japan would have strong academic skills, but emphasized motivation, having enjoyable outside interests, being well-rounded, and cultivating the nonacademic skills required to teach effectively. Good teaching seemed to be a possibility for anyone who would put forth effort toward developing these skills and human traits. The effort required was expected to spring from pursuing one's interests, not only in school but in all aspects of an individual's life.

Teaching

Elementary School Teaching

Although the extensive committee assignments and detailing of responsibilities led to a complex organizational structure within each school, teachers had considerable flexibility. At the elementary school level there were schedules for classroom activities and other activities, but the teachers seemed comfortable with changing schedules based on students' needs. Teachers were encouraged to modify schedules depending on the weather, children's moods and behavior, and other factors. For example, one vice principal, during a morning teachers' meeting, called upon the teachers to reflect upon (*hansei suru*) Saturday because it had been such nice weather; he would have liked to have seen more classes playing outside. Although this might also be viewed as administrative interference in the running of classes, it was meant as an encouragement to drop the planned schedule and take advantage of a sunny day in the midst of the rainy season. The principal at Tancho Elementary School proudly pointed out that there were no chimes between third and fourth and between fifth and sixth periods so that teachers could use those 2 hours without a break as a 2-hour block if they wished. He told me, "it is up to the teachers to decide freely. They can watch the students' condition and decide if what they are doing should be continued or stopped."

Recognition that children need to be active. The schedule (figure 8) translated from Hasu Elementary School's guidebook exemplifies the emphasis on student interaction, physical activity, and learning about things like cleaning and preparing meals. 45 minutes a day are devoted to preparing, eating together, and cleaning up from lunch, and an additional 20 minutes are spent cleaning the school. Students clean almost every area of the school daily including the restrooms, outdoor sidewalks and gardens, floors, and emptying trash and recyclables. All of the times listed as "free time" can be used to go outdoors to the play area (weather permitting), play in the classroom, or play in the gymnasium or library. In addition, students are encouraged to arrive a little early and play outdoors or in the gymnasium.

On Monday there is an all-school morning meeting when students line up with their classes either outdoors or in the gymnasium, and the principal and teachers make announcements. Then they all do a routine set of exercises to music. On Wednesdays, students stay outdoors or in the gymnasium in their classroom groups and are encouraged to be very active physically—for example, the fourth-graders were divided among the monkey bars, jungle gym, and parallel bars on the playground, and the teachers circulated to make sure all children were participating actively and using lots of energy. The principal told me this was time for "preparing their minds (*kokoro no junbi no jikan*). It is very important." The "Hasu time," "open time," and

Figure 8–Weekly schedule for Hasu Elementary School

Time	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
8:15 a.m.								
8:30–8:35	Scheduled Activities	(Guidance as students arrive at school) Teachers Informational Meeting						
to 8:50	Meetings/ Morning Meeting	All School Meeting/*	*	Physical Education *	"Hasu" Time	Open*	Child Time *	*Morning Meetings in classroom run
to 9:35	I (first period)							mainly by students "Open"–2nd
	Free Time	(10 Minutes)						& 4th week
9:45–10:30	II (second period)							for meeting together with
	Free Time	(15 Minutes)						a different
10:45–11:30	III (third period)						creative art 456	grade year
	Free Time	(10 Minutes) (No Chimes)					Going Home Meeting	
11:40–12:25	IV (fourth period)						11:45–12:15 Supervise students leaving	
12:25–1:10	Lunch	Preparation/eating together (40 Minutes) Cleaning up after Lunch (5 Minutes)						
1:10	Cleaning	All School Cleaning (20 Minutes)						

Figure 8–Weekly schedule for Hasu Elementary School—*continued*

Time	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
1:30–1:45	Free Time	Going Home Meeting	(15 Minutes) (first-graders go home)					
1:45–2:30	V (fifth period)	Clubs 4, 5, & 6	Last period 1, 2 & 3	Last period 2 & 3	Last period All	Last period 1 & 2		
	Free Time	(10 minute break or going home meeting)						
2:40–3:25	VI (sixth period)	Management Committee	Last Period 3–6	Last period 4, 5 & 6		creative art/ student council		
3:25–3:35	Going Home Meeting		Going Home Meeting	Going Home Meeting		Going Home Meeting		
4:00–5:00		Teachers Meetings On Site Education Grade Year Meetings	Educational Materials Research/ Development of Learning Materials Subject Areas Meetings		Teachers Meetings On Site Education/ Cooperative Research/ Committee Meetings	Subject Areas Group Meetings		

SOURCE: Hasu Elementary School Guidebook, 1995

"child time" on Wednesday, Thursday, and Friday likewise usually involved either physical activity together or group discussions or games in the classrooms. At Tancho Elementary School these various morning activities were called "play time" (Tuesday, Thursday, Saturday), "Tancho child time" (Wednesday), and "togetherness time" (Friday). In addition, all students leave by 2:30 p.m. on Mondays and Thursdays and first- through third-graders leave earlier on most days. Teachers told me that this is necessary, because young children cannot sit still for such long days.

I observed several instances where a teacher stopped a class or delayed beginning a lesson in order to discuss issues related to student relationships. In one classroom with a new Korean student, the teacher led three full class discussions about respect and getting along with each other in response to the new student's tears. In some classes, 10 or 20 minutes at the end of each day are used to discuss the good and bad events of the day with a focus on self-reflection.

Giving attention and plenty of time to students' moods and the interactions between students seemed to deter serious discipline problems. One boisterous fourth-grade girl soundly slapped a boy on the back over a dispute about lunch portions. The teacher, after spraying the boy's back with a cooling first aid spray, quickly asked the class how the dispute could have been handled. A brief discussion followed and the girl apologized in tears to the boy and to the class, but then seemed to dry her tears and happily rejoined her friends in a game.

In another classroom, one active boy rushed up to refill his bowl at lunch and caused another boy to trip and drop his entire lunch tray. Rather than lecturing the class or scolding the boy, the teacher looked up and asked, "how will we clean up the mess?" The surrounding classmates immediately grabbed cleaning equipment and, when the floor was clean, students shared small amounts of their portions with the boy whose meal had been lost. At the end of the day, the boy who had caused the accident apologized to the class and the other boy thanked the class for helping him. The potential for an emotionally charged exchange became instead a chance to practice formal apologies and thank yous. The disciplinary techniques observed all seemed to focus on asking the students to work together to solve a problem rather than assigning blame to any one student.

Science and arithmetic teaching. In all three elementary schools there were similarities in the use of props and the way in which teachers used a variety of teaching methods during science and arithmetic lessons. For example, fourth-graders were all doing a unit on weights and working with scales they had made of milk cartons. The teachers were adept at changing activities every 5or 10 minutes in order to keep children's attention and each seemed to have a vast repertoire of teaching strategies.

All the elementary school teachers told me that there were no staff assistants who prepare class materials for them, although some schools had an office assistant who helped with making photocopies and other routine tasks. Teachers commented that they worked together with other teachers to prepare and share materials. At Hasu Elementary School, as described above, the sixth-grade teachers were observed planning together and sharing materials for the experiment in a science lesson and then discussing how their own class had responded to the lesson. In addition, all schools were experimenting with "team-teaching," which usually meant combining classes for a lesson. Recently, according to several respondents, team-teaching also is encouraged by the provision of an extra part-time teacher, although this was not the case in any elementary school classes I observed.

The most unusual and seemingly chaotic math class I observed was one in which the students were finishing a lesson from the previous days' "team-taught" class. In that class the three teachers had stationed themselves around the gymnasium and students had worked independently or in small groups. They had gone to one of the teachers, depending on their progress, to have their work checked or have some part explained. In the class I observed, most students had not finished the handouts and thus were attempting to complete them in class, so the teacher had students who were finished act as "helpers" in charge of checking other students' work. It was a geometry lesson where students were expected to recreate certain shapes in different sizes using protractors, rulers, and compasses. The teacher sat at his desk checking final products and giving permission to go on to the next section. The room was noisy and seemed somewhat disorganized. After class the teacher explained that the class was markedly different from his regular lessons in which mainly he teaches and students listen.

An individualized arithmetic class. Classes are typically teacher-directed, but individualized classes also occurred frequently. There is growing discussion in Japanese elementary schools on individualized instruction and allowing students to work at their own pace. The students in the classroom described at length below seemed to enjoy the freedom and chance to move around, and only one boy seemed to fall behind and he may have been behind with any type of instruction. The relationship of this particular teacher to his students and his ability to calm them down quickly were factors that kept this classroom from becoming unmanageable. I've described this classroom in detail in order to convey some of the noise and variety of activities.

One Matsu Elementary School arithmetic class began at 8:51 a.m. when the teacher rang a bell and called out, "all right, arithmetic." Many students immediately rushed up to the teacher's desk to have their work checked and several said, "teacher! seals!" asking him to put stickers on their finished work. He replied to this request by saying slowly, "I know!" At any time about half the class was working relatively quietly on work at their desks. While checking individual students' work, he loudly

said "no good" several times and finally stopped to write a problem quickly on the board. He told the class "those who miss this don't get a sticker!" Students picked up their own stickers after having their work checked.

After about 15 minutes of checking individual work, the teacher again rang his little bell and told the students still in line at his desk to sit down. He then lectured briefly, while writing the problems clearly on the chalkboard, that although setting the problem 48 + 173 + 27 equal to (173 + 27) + 48 is not really wrong, and this is what one boy he names does a lot, it is altogether wrong in the following example: 15 + 4 x 3 = 4 x 3 = 12 =15 + 12 = 27. He repeated that this is totally wrong and crossed it out with red chalk. The lesson continued briefly as he explained that although you can change the order with addition, you can't with other operations, so it is best not to change the order of the numbers for addition either so you do not form bad habits. The emphasis was on understanding how incorrect answers are produced and on how to avoid faulty problem solving.

The students again immediately lined up at his desk as soon as he finished talking. After a couple more minutes he rang the bell again to point out another technique for a problem. He called out, "hey, look this way! This isn't just Nakada-san's way of doing it." He wrote on the board: 53 x 4—27 x 4 = (53—27) x 4. Then he asked who else solved it this way, and about half the students raised their hands. He returned to marking papers and remarked loudly that he was going to mark them quickly. One student asked, "why" and the teacher exclaimed, "because I'm worn out!" (Throughout the period he joked around with students in this manner.) Students mostly worked independently at their desks, but some in line compared their work to see if it was correct. The line stretched out into the hallway and was rather noisy. Two boys raced each other to the line noisily. Mr. N sometimes muttered "uh-oh," as if he had come across a wrong answer, even if it was correct, to tease the students. He asked one girl who was done if she could explain the problem to a boy sitting beside her. She sat down to help him. He instructed another girl to check on the boy's work behind her. After a few minutes, he asked her if the boy was understanding the problem and she said "yes."

Forty minutes into the class, after much energetic behavior and running around on the part of the students, the teacher worked his way slowly to the back of the room to help a boy who was still struggling with the problems. On his way, he stopped to help other students and never reached the confused pupil's desk before the chimes rang and class ended. Except for this one student, all seemed to be involved and learning.

A teacher-directed arithmetic class. At the same school, again in the fourth grade, another teacher conducted quite a different type of classroom instruction. This class was a more typical class period and included a combination of teacher-directed

learning, student response, time to work independently with teacher assistance, and a quick game at the end to keep up enthusiasm. There seemed to be little chance of boredom, given the rapid pace of instruction and the need to raise one's hand or stand up in response to continual teacher questions about whether or not the material is being understood and to give answers to various problems. Again, I'll describe this class in great detail to provide a sense of the contrast with the previously described math lesson.

This teacher began by instructing the students to get out their notebooks for arithmetic and briefly allowed some confusion as one boy walked up to the front to receive a stamp on pages he had finished. One particularly excitable boy in the back asked about a game they had just finished, and the teacher told the class, "we're not doing that anymore, now we are doing arithmetic. Once you are finished getting out your notebook, please look at my face. Let's do problem number two that you did yesterday."

Although we could hear the students in the classroom next door loudly chanting something, the room got quiet as students settled with their books on their desks and directed their attention toward the front chalkboard. The lesson was on estimation and rounding. The teacher wrote four problems from their textbooks neatly on the board—a. 20 x 58 b. 31 x 62 c. 28 x 53 d. 58 x 43. She began by demonstrating that the answer to (a.) would be between 20 x 50 and 30 x 60 and showed them that since the lower number is exactly 20, they should use only 20. She concluded, writing on the chalkboard, that their small estimate should have been 20 x 50 and their large estimate 20 x 60. The teacher then asked the class to raise their hands if they understand. About two-thirds of the students raised their hands and when she requested, "if you don't understand some parts of it, raise your hands," about eight hands went up.

She then said they would try a simple problem and wrote 2 x 3 and 2 x 5 on the chalkboard and asked where the product of 2 x 4 would fit. All but about five students raised their hands when she asked them if they understood this simpler problem. She continued doing problems by calling on students who volunteered to describe each step of the solutions. Whenever the teacher asked a question, the students who knew the answer immediately raised their hands. Similarly, when asked whether or not they understood the problem, students all raised their hands quickly in response. Although there were 36 students in the room, it was obvious which students were able to follow along and which students were lost.

The teacher then assigned a set of example problems from their textbook to be worked out in their notebooks and she walked around the classroom. She encouraged students by saying "try struggling with this. This is difficult." After about 5 min-

utes of individual work, she had them help her work out the example problems on the chalkboard. She illustrated the usefulness of the estimation technique by giving the example of having 720 yen and needing to divide it among either three or four people. "Who would be richer?" she asked. Students excitedly called out that they are either richer than or not as rich than if they had a different amount. It seemed that all students were paying attention to the lesson. At this point one boy called out that the boy across from him wasn't doing his work. The teacher kindly responded, "OK, but yesterday he did it the best," and said to the boy in question, "look into your heart and decide for yourself." The class continued with another short lecture about the general rule for estimation—the larger the number by which you divide, the smaller the number will be in the answer. Then students were assigned more individual work for about 5 minutes.

At 9:30 a.m. she ended this section of the lesson and asked the students to move their desks into groups of six. Each group chose a "player" (all groups choose boys) and she gave them the problem 82 + 16. Two boys answered correctly at exactly the same moment, and the teacher had the other four "players" sit down and these two boys do "rock, paper, scissors" to decide the winner. The children cheered loudly for the winner. The teacher stated that class is now over and the student who was in charge for the day called out the traditional commands of "stand up" (*kiritsu*), "attention" (*kiotsuke*), and "bow" (*rei*) and class ended.

One teacher used an even greater variety of such methods and his sixth-grade students almost never had a moment without needing to respond; he had them do individual problems in their notebooks but these became group activities as he variously asked them to stand up, close their books, turn their desks around (which meant switching to the back chalkboard for awhile), raise their hands, or check their partner's work when finished. Meanwhile, he would quickly gather together the students who were struggling, coach them and explain the problem, and send them back to try the next problem. Although the class used group-based instruction and all students were proceeding at the same pace, each student seemed to get individual attention and any lack of understanding or lack of participation was quickly noted and corrected. The noise level would rise and fall dramatically after the problem was assigned and as students moved their desks or bodies or discussed the problem with a partner, but all seemed to be enjoying basic arithmetic practice. In his classroom, students even had various code phrases for how to solve problems and how to talk about various issues. This was their second year as a class with the same teacher, and they seemed totally accustomed to his rapid instructions and comfortable indicating their level of understanding.

A science class in the laboratory room. Similarly, science classes seem to range from fairly individualized work to more teacher-directed interactions, although all the science periods I observed in these three elementary schools included hands-on work

with materials. This teacher skillfully used diverse teaching strategies to vary the level of activity in the room and maintain student interest. She carefully went over new concepts repeatedly—new words were first explained, then read by a few students individually, then practiced as a group; students first read silently and then listened as one student read the same section; and the use of the scale was first demonstrated by the teacher and then students immediately tried the same actions in their small groups. The small groups were decided ahead of time and used for various activities, not just for science, and students were familiar with the equipment they needed and with traveling to the laboratory room. Little time was required for preparations and cleanup and all except one student was fully prepared with texts, model scales made during previous class periods, notebooks, and writing supplies. The fourth-grade teachers were sharing the laboratory room scales, and had agreed among themselves about how and where they would be stored, so this equipment, too, was easily accessible and cleanup was straightforward.

The fourth-grade teacher at Hasu Elementary School began by instructing the students to move to the science laboratory room, and students gathered together their scales made of milk cartons, texts, notebooks, and pencil cases and slowly filed down two flights of stairs. Most were seated and settled before the chimes rang. After a brief lecture reviewing the previous lesson when students had weighed erasers to compare weights, the teacher wrote new vocabulary words related to scales on the chalkboard. She asked individual students to take turns reading the words to the class and then asked the entire class to read the words aloud together. Students chanted the words and played with the intonation as they repeated them, and the teacher allowed the noise. Students were asked to read a textbook page silently while the teacher disappeared into the next door preparation room to look for an extra textbook for one boy who had forgotten his. When she returned she asked one student to read the assigned page aloud to the class. The teacher next instructed the "mother" (*okaasan*) of each group to get the scales for their groups (within their groups they are divided into "father," "mother," "brother," and "sister," titles which emphasize the family-like nature of these groups). She then gathered all the students around the table in the front of the room and demonstrated the parts of a balancing scale and how to hold weights using a large model scale. She told students to return to their groups and practice on their group's scale. Students worked in their groups, more or less diligently, depending on the group, while the teacher again disappeared into the preparation room for about 3 minutes.

On her return the teacher asked one little boy who was crying quietly what was wrong. He stood and said in a tearful voice that someone in his group was angry at him. She took time to listen carefully to the group's explanation of what they said to the boy. She told him it was not something to cry about and he should sit down and she would check with their group later.

The class proceeded with individual reading and then group reading of the next page and another demonstration using weights on the large model scale at the front of the room. The last 10 minutes of class were used to try to weigh various small objects in student groups. Some groups were more successful than others, and the teacher finally got to the last group just as the chimes ring. She corrected their approach briefly and then announced that class was ending and told the students to carry their things up to the classroom first and get outside quickly for their 20-minute break. All left quickly except for one group who had put the box for their scale on a shelf under the table where it got stuck. After allowing them to try to get it out for a few minutes, the teacher went back to help and they quickly put things away and left the room.

Differences Between Schools

The previous descriptions of lessons demonstrate the variety of teaching methods, the movement and noise allowed during class, and the way fourth-grade students were already accustomed to working in a variety of conditions. There were more students at Hasu Elementary School who struggled with learning than at the other two schools. Three or four students often were noisy or moving around during class, and three or four struggled with most of their lessons (two children fit both categories). At Matsu, there was only one student in each classroom who seemed unable to keep up with the work, and one was a Korean girl who had arrived in March and was still struggling with the Japanese language. Similarly, at Tancho there was at most one student who struggled in various classes. Because this was the first lesson with the balancing scales in the science class described above, the teacher told me she was not overly concerned about the group that did not understand—they still had time to learn. However, teaching fourth-graders at Hasu Elementary School seemed to be more challenging than at some other elementary schools. The Hasu teacher described her students cautiously:

> Well, their real circumstances, the underside of the students being so friendly, may be that they don't get enough affection, you know. There are various issues about their academic ability, too, but if I have affection for them and try to teach them, they respond.

Later, the same teacher described the home backgrounds of the students at Hasu Elementary School:

> Yes, around this school there are a lot of families that have become single parent homes. Now in Japan, they are increasing. So, there are quite a few children whose mothers are working , so providing affection to those children in school is important.

This evaluation of the school differed considerably from one a teacher gave me of Matsu Elementary School. I commented on his use of a bell to get students' attention and his response illustrated the different background of students at various elementary schools.

> Teacher: The bell, right? When I ring that the children get quiet. And that is a good thing about this school—the students listen. When the bell rings, they get quiet. And when it gets quiet it gets really quiet. At my previous school, it never got that quiet. (He came to this school just this year.) I guess it is the differences in parents.
>
> Interviewer: The neighborhood differences?
>
> Teacher: Right, and the differences in the type of work (of the parents).
>
> Interviewer: When you say that I am reminded of your earlier comment that several children are from mother only families, and that kind of circumstance. Even then your previous school was?
>
> Teacher: Right, my previous school had that too. I really don't know this area that well, but this area near the mountains as compared to the downtown area, (*shitamachi*), which connotes an area of shopkeepers and small businesses, (not a wealthy area) there is quite a distance. This is a high-level area.

Slight differences in composition, employment, and income of the students' families seem to have a relatively large impact on how children participated in class. I discussed how much parental involvement effects the performance of children with a teacher at Tancho Elementary, the school in our sample with the highest-income families:

> Right. I think that at some point they (students) start to be able to do things on their own, but when that is exactly, I'm not sure. For first-graders, they have to always have things written down on their memo pads and first the teacher checks to see if it is written correctly and then they must have it checked to show they have shown it (to their parents). By third grade we say, "have you written it? You've written it, right? Show me," and that's all. And we check that much. Today we had messages and things they cannot forget, and I wrote it down (on the chalkboard to be copied). Probably the parents, too, check and remind them about what they especially shouldn't forget. I think the parents usually do that. I think, for example, if they have forgotten their swimming things, I tell them, you can't say it is your mother's fault. And of course, maybe their mother has to get the swimming things out, but they have to remind her that they need it. I suppose there are big differences in mothers, each is different. Therefore, whether they remember things or not the next day really differs. Especially in first grade, what everyone says is that when they have things that have to be done or checked off, it is really like grading the mothers. It is that way in the end. And gradually they have to learn to do things on their own.

Her lengthy description confirms how important a parent's support is to a child's success in school and how even slight differences in the home lives of children may produce very different outcomes in classroom participation.

Junior High School Teaching

Science and math instruction at the junior high school level is quite different from that observed in the elementary schools. Almost all the math instruction I observed consisted of either lectures or giving problems to students and the students then taking turns to demonstrate the solutions on the chalkboards. Science was somewhat more lively, especially when it involved laboratory experiments. I observed three 2nd-year science classes at Shimogawa Junior High School. In the first class the teacher began by finishing a previous lesson on digestive systems by going through students' homework answers. Then he proceeded to begin teaching about the periodic table of the elements and the characteristics of metals in preparation for an experiment during their next class. The next 2nd-year class the same teacher taught was a little ahead and did the experiment. The third class was working on the same chemistry lesson but did not do the experiment. They spent quite a bit of time beginning to memorize the periodic table of the elements, using a rhyme that the teacher taught.

I also observed three different science classes taught by the same teacher at Chuo Junior High School. He taught one 1st-year class in the classroom, one in the laboratory where they performed an experiment on two types of metals, and in one class he had the students divide into groups (*han*) and create skits about chemical interactions. He told me that he only held classes using methods like a skit about once or twice a year and had scheduled it to coincide with my visit to provide variety. During the physics and chemistry segment of science students usually do an experiment once every 2 or 3 class hours. Before the most recent *Monbusho* guideline revisions they also had many experiments, but he told me that, "the recent emphasis on experiential learning has increased them." I asked him whether he had also increased the number of experiments over his six years of experience and he responded, "yes, I think I have increased them but, well, I shouldn't tell you this, but the preparation is quite difficult." But he went on to suggest that experiments are useful:

> Well, children like the experiments. If I listen to them talking, they say things like, "wow!" It is unusual for them to think that way, but usually they try things and say "this is great!" and "this is interesting." Since it is something that they experience on their own, I think experiments are definitely important.

Since Chuo is a highly ranked junior high school where most students are trying for high-ranked high schools, I wondered if time spent on experiments was in competition with examination preparation:

Teacher: Even if you don't do experiments, if you just remember the material, you could do the exams, without the experiments. But, the experiment itself isn't the only goal. Even for the connection to studying for the exams, they can learn the knowledge more easily through the experiment, I think. So, experiments are important, I think.

I asked him whether even during the 3rd year of junior high, when exam preparation is most emphasized, he takes time for experiments.

Teacher: Yes, they have them. In the 3rd year they are a little more difficult. Like neutralizing things, from acids and bases we neutralize things. Those types of experiments. Now experiments have gradually gotten more simple, when you compare them to before. And now we don't use very dangerous materials much. And if we use them we use very weak things—we have gotten so we don't use concentrated materials much.

The science teacher at Shimogawa Junior High School, where the level of students is more variable, also thought that experiments were useful. But he pointed out that the different levels of preparation of students, owing to the attendance at examination preparatory schools (*juku*) after hours, can create a problem. He said it is fun to teach science if the students are interested but if they have studied so much that they already know the results of an experiment that can be a problem. He also commented that it is a bit difficult because final grades have to be divided up so that one-tenth of the students get "1" (the lowest grade) and one-tenth get "5" (the highest grade) and "3" is the most common grade given. Some of the struggling students have trouble even taking notes, and I observed one girl who could not even do basic arithmetic. These differences take some of the fun out of teaching science at Shimogawa, but they probably do not occur as often at Chuo, where almost all students are getting outside help and have high-level abilities.

High School Teaching

In the high school classrooms I observed similar mathematics and science teaching methods to those seen in junior high schools. One science class and one mathematics class that I observed consisted almost entirely of the teacher lecturing and the students taking notes. At Arata High School, the biology teacher prepared an extensive set of worksheets for each student that they kept together in a notebook. He offered two reasons for using this method—the lack of a textbook that was appropriate to the level of these students, and the ability to cover more material more quickly if the students could fill-in-the blanks in the prepared notes as they followed his lectures. Students in his class were learning about the parts of a flower and the process by which genes combined to produce variations of a flower. For this lesson in genetics, students needed to draw in the various cell parts as the flowers devel-

oped and the prepared notes consisted of boxes for the drawings that were labeled as to the different stages in the process. Although the lesson was mainly a lecture given by the teacher with little room for student participation, the use of prepared notes involved each student individually in the fast-paced lesson. The reason for the fast pace was preparation for college entry examinations.

One chemistry class at Meiji High School consisted of a 50-minute lecture by the teacher, but he began with a demonstration experiment using colored liquids and digressed halfway through to include a lively example about photography. Again, although the lesson was fast paced and somewhat dry, it seemed well designed to maintain most students' interest. There was much less concern for students who were falling behind than I observed at the elementary school level.

I observed some student presentation of problems prepared in advance and some lecturing or working out of a problem on the chalkboard by the teacher in all the high school mathematics classes. The more interesting teachers interjected descriptions of how problems were relevant to everyday life, or funny stories, or, in one teachers' mathematics lesson, a discussion of local festivals and where the best food could be found.

Teachers at high schools reported having some assistance when preparing for experiments and other activities. Most schools have at least one science assistant, but that person may be more or less qualified; in the school observed one assistant was really the library aide doing double duty and one was a fully qualified science teacher who had not yet been able to find employment in the district. Schools also sometimes have an office assistant who will help with copying and other basic clerical tasks, but such an assistant is not available at all schools.

At Meiji High School all students seemed to be prepared for class and be able to do most of the problems; at Arata High School a few students were clearly unmotivated and ill-prepared but most were prepared and seemed quite diligent and competent, and at Naka Vocational High, the teachers seemed to assume little preparation and instead worked on the assumption that most students could do the work if they went slowly and explained things carefully. At Naka I also observed a mathematics teacher asking students to solve problems and then asking other students for comments on how to improve the problems, a method similar to that of many elementary school teachers. It seemed that because there was little pressure to prepare these students for examinations, time was used to develop basic mathematical skills among all students.

Staff Support for Teachers

Elementary and junior high school science teachers reported that they are not assisted by extra staff. At Shimogawa a teacher described how they prepare a budget for science materials and order the materials. He said they cannot do as many experiments for biology, partly because materials must be very fresh, and it is difficult to schedule all the classes and prepare the materials in a timely fashion on his own. During chemistry and physics sections they do more experiments. The teacher at Chuo Junior High School also told me that he has no help. He and another teacher share the science responsibilities in each grade. For example, when he has done the preparation and the experiment, he leaves things for the other teacher and the reverse. But this year he has all three 3rd-year classes, so he has to do all the preparations on his own.

At the elementary school level, too, I observed teachers in the same grade level sharing preparations and supplies for science projects. In addition, two experienced teachers were involved in the production of a teachers' handbook to accompany the science textbooks. One told me:

> It's for the teachers who aren't science majors. It has everything written out right in order so when they teach it to the children they can do the bare minimum of science teaching.

This teacher added a note to the teachers' guidebook draft after the class I observed. He was teaching the children about the necessity of scales for weighing things and suddenly had the idea to have a child stand with his hands out like a scale and try guessing the relative weights of different numbers of paper clips in each hand. The teacher had one boy close his eyes and try to guess which hand had more weight and to the other children's great delight, the boy guessed incorrectly two out of three times. Through this entertaining action, he demonstrated the necessity of scales for weighing differences that humans are unable to perceive accurately. This is the sort of tip that they include in the teachers' guidebook that carefully follows the textbook lessons.

Conclusions

Teachers in Japan occupy a relatively high status and receive adequate salaries. Their work lives are busy but also flexible to some degree. How much time teachers spend outside of the usual 8:00 a.m. to 5:00 p.m. workday depends on their personality, their goals, and their stage in life. In general, teachers feel they are both responsible

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for and in control of most of what occurs in their schools and classrooms. Although there are times when administrators assert control and assign teachers to tasks or schools that were not requested, teachers see most assignments as part of what they expected when they became teachers. Although teachers are at their schools for long hours, junior high school and high school teachers usually teach no more than 4 of the 6 hours of classes each day. Elementary school teachers are very busy but they, too, are expected to be at school for planning, meeting with other teachers, advising students, and socializing for about a half-hour before classes begin in the morning and for at least an hour after school ends in the afternoon. Most teachers do all their school-related work at school, which contributes to frequent interaction among teachers.

A high level of academic ability is assumed among Japanese teachers because almost all have graduated from universities and have taken many credits in their area of specialization. Their academic knowledge is continually replenished through interactions with other teachers, inservice training, and especially through voluntary participation in small research and study groups.

Novice teachers are assigned formal mentors during their 1st year on the job. Teachers agreed that throughout their teaching years they look to other teachers for guidance and help. Most teachers seemed to feel they are effective at the basic tasks of teaching, partly because they have been explicitly taught about lesson planning, the use of materials, and more basic things such as how to write on the chalkboard. A variety of teaching techniques and presentation styles was observed and each teacher seemed to have a substantial repertoire of methods from which to draw. Even so, most teachers expressed a desire to improve themselves and their ability to reach out to all students.

Not all children in Japanese schools behave themselves well at all times, and I observed many instances of the need for discipline. In all cases teachers attempted to get students to resolve problems among themselves and to discuss disagreements. Usually a homeroom teacher initially addresses a discipline problem and then, depending on the severity of the infraction, the head grade level teacher, other homeroom teachers, or administrators may also be asked to get involved. No teacher expressed a sense of powerlessness in the face of student behavior. Minor infractions, such as making a joke during a lesson, were tolerated and even indulged. Since enjoyment and social development are seen as important goals for students during the school day, teachers seemed to feel they could freely engage their students in enjoyable activities, regardless of the subject being taught.

Especially in elementary schools, but also in junior high schools and high schools, teachers saw themselves as guiding students to become more fully developed

human beings. Rather than focusing exclusively on academic subjects, all the schools allowed time for enjoyable interactions through free time between classes or after lunch, encouraging students to interact with their friends on school property before and after school hours, scheduling school trips and other outings, and planning special school events such as festivals, music contests, sports exhibitions and other activities. This emphasis on the development of a multifaceted person enables many students, not just the academically most able, to find some niche within the school world.

Glossary

bu: Optional extracurricular activities

burakumin: Traditional lowest caste of Japan

gakureki shakai: School credentialism

hensachi: Standarized scores

hoikuen: Day-care center

hoikusho: Day-care center

hoshu jyugyo: Supplementary lessons

ijime: Bullying/teasing

Juku: Cram school

Keisatsucho: Police Department

kikoku shijo: Students who have returned from an extensive period of staying overseas

koko suisen: Recommendation for high school entrance

kokuritsu: National institution

kurabu (bukatsudo): Club

Menkyoho Shiko Kisoku: Regulations for Implimenting Teachers' Licence

Monbusho: Ministry of Education, Science, and Culture

NHK : Japan Broadcasting Society

NHK Seron Chosabu: NHK public opinion poll department

NHK Seron Chosa: NHK opinion poll survey

Nihon Seishonen Kenkyusho : Japanese Research Center for Children and Youth

Nikkyoso: Japanese Teachers Union

ronin (daigaku ronin): "Masterless samurai": high school graduates who failed in the university entrance exam to the school of their choice and have elected to spend a full year preparing to take the examinations again

ruikei: Tracking systems

Seimei Hoken Bunka Senta: Culture Center of Life Insurance Co

senta shiken: Center Examination administered by the National Center for University Entrance Examination (Daigaku Nyushi Senta)

shingakko: Private elite academic high schools which send a high proportion of graduates to elite colleges

shiteiko suisen: One of two recommendation systems, involves special quotas for applicants from schools that are highly ranked academically

shushoku ronin: "Masterless samurai": graduates who failed in finding a job and have elected to spend a full year studying

Somucho Seishonen Taisaku Honbu : Children and Youth Division, Management and Coordinating Agency

tokubetsu waku: Special quotas in certain departments (for kikokushijo)

yobiko: University entrance exam preparatory school

yochien: Kindergarten

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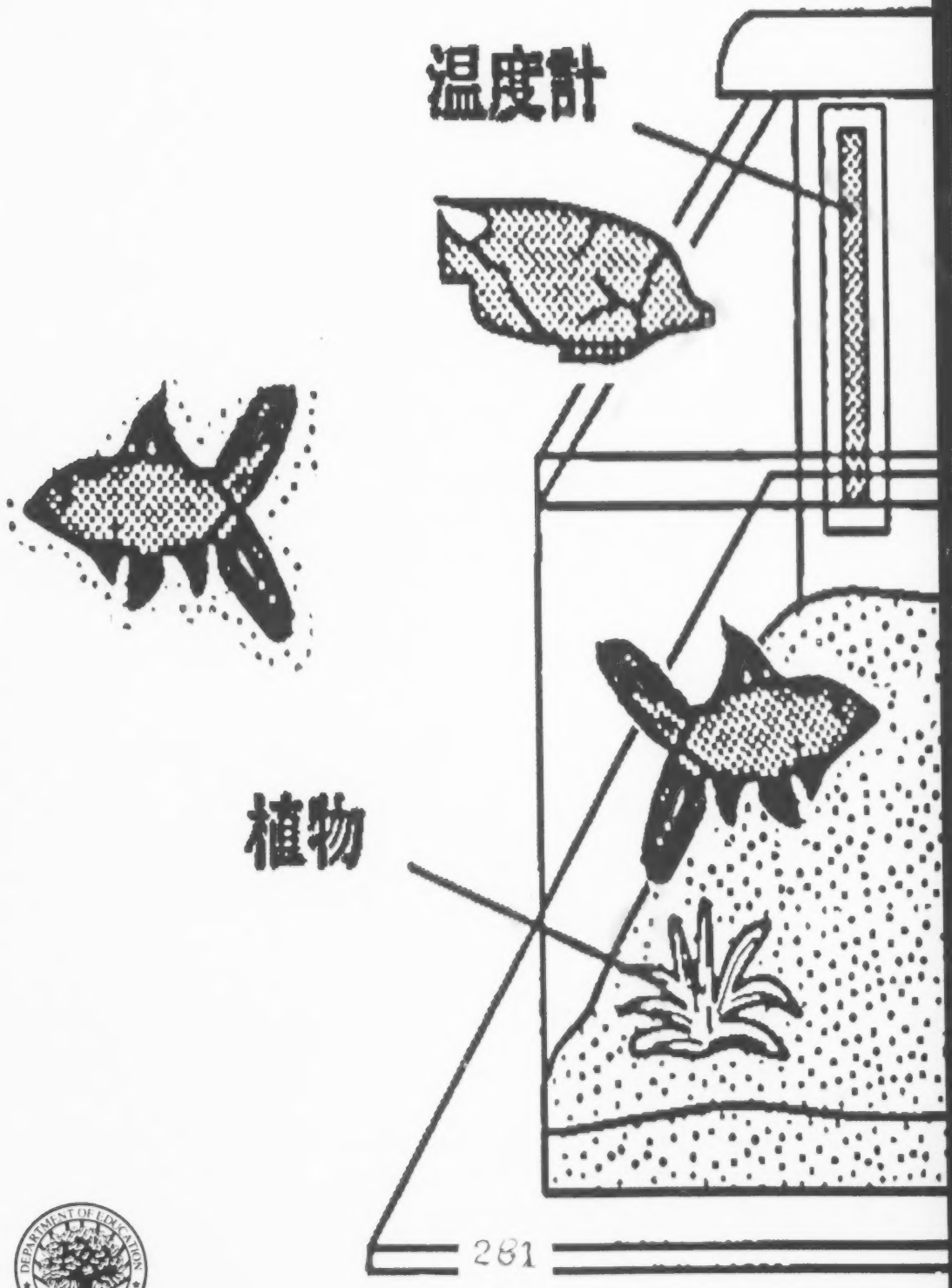

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